

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

Mo-6727/LeA 33,672

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/980666

To Be Assigned

INTERNATIONAL APPLICATION NO.

INTERNATIONAL FILING DATE

PRIORITY DATE CLAIMED

PCT/EP00/03608

20 April 2000 (20.04.00)

06 May 1999 (6.05.99)

TITLE OF INVENTION

SUBSTITUTED BENZOYLISOXAZOLES AND THE USE THEREOF AS HERBICIDES

APPLICANT(S) FOR DO/EO/US MULLER, Klaus-Helmut, et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.
14. ☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information:

Abstract

21. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):**Neither international preliminary examination fee (37 CFR 1.482)
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO
and International Search Report not prepared by the EPO or JPO. **\$1040.00**International preliminary examination fee (37 CFR 1.482) not paid to
USPTO but International Search Report prepared by the EPO or JPO **\$890.00**International preliminary examination fee (37 CFR 1.482) not paid to USPTO
but international search fee (37 CFR 1.445(a)(2)) paid to USPTO **\$740.00**International preliminary examination fee (37 CFR 1.482) paid to USPTO
but all claims did not satisfy provisions of PCT Article 33(1)-(4) **\$710.00**International preliminary examination fee (37 CFR 1.482) paid to USPTO
and all claims satisfied provisions of PCT Article 33(1)-(4) **\$100.00****ENTER APPROPRIATE BASIC FEE AMOUNT =**Surcharge of **\$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(e)).

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	20 - 20 =	0	x \$18.00	\$ 0.00
Independent claims	1 - 3 =	0	x \$84.00	\$ 0.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+ \$280.00
TOTAL OF ABOVE CALCULATIONS =				\$ 890.00
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				+ \$ 0.00
SUBTOTAL =				\$ 890.00
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$ 0.00
TOTAL NATIONAL FEE =				\$ 890.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				+ \$ 40.00
TOTAL FEES ENCLOSED =				\$ 930.00
Amount to be refunded:				\$
charged:				\$

- a. ☐ A check in the amount of \$ _____ to cover the above fees is enclosed.
- b. ☒ Please charge my Deposit Account No. 13-3848 in the amount of \$ 930.00 to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 13-3848. A duplicate copy of this sheet is enclosed.
- d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO.



PATENT TRADEMARK OFFICE

SIGNATURE

Joseph C. Gil

NAME

26,602

REGISTRATION NUMBER

09/980666

JC10 Rec'd PCT/PTO 0 2 NOV 2001

PATENT APPLICATION

Mo6727

LeA 33,672

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION OF)
KLAUS-HELMUT MÜLLER ET AL) PCT/EP00/03608
SERIAL NUMBER: TO BE ASSIGNED)
FILED: HERewith)
TITLE: SUBSTITUTED BENZOYLISOXAZOLES)
AND THE USE THEREOF AS)
HERBICIDES)

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents

Washington, D.C. 20231

Upon the granting of a serial number and filing date and prior to the examination of the subject application, kindly amend the application as follows. A marked up copy of the claims to show changes is attached to this Preliminary Amendment.

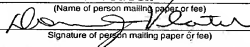
"Express Mail" mailing label number ET146685C53US

Date of Deposit November 2, 2001

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner of Patents and Trademarks, Washington, D.C. 20231

Donna J. Veatch

(Name of person mailing paper or fee)



(Signature of person mailing paper or fee)

IN THE TITLE:

Before the first line of the specification, please amend the title as follows:

~~--SUBSTITUTED BENZOYLISOXAZOLES AND
THE USE THEREOF AS HERBICIDES--~~

IN THE ABSTRACT:

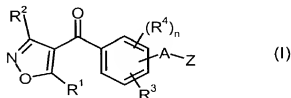
Please replace line 1 of the Abstract with the following:

~~--SUBSTITUTED BENZOYLISOXAZOLES AND
THE USE THEREOF AS HERBICIDES--~~

IN THE CLAIMS:

Please cancel Claim 15. Please amend the remaining claims as follows:

- (Once Amended) A compound of the Formula (I),



in which

n represents the number 0, 1, 2 or 3,

A represents a single bond or represents alkanediyl (alkylene),

R¹ represents hydrogen or represents in each case optionally substituted alkyl, alkenyl or cycloalkyl,

R² represents hydrogen, cyano, carbamoyl, halogen, or represents in each case optionally substituted alkyl, alkylcarbonyl, alkoxy, alkoxycarbonyl, alkylthio, alkylsulphinyl or alkylsulphonyl,

R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or dialkylaminosulphonyl,

R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or dialkylaminosulphonyl, and

Z represents an optionally substituted 4- to 12-membered, saturated or unsaturated, monocyclic or bicyclic, heterocyclic grouping which contains 1 to 4 hetero atoms (up to 4 nitrogen atoms and optionally - alternatively or additionally - one oxygen atom or one sulphur atom, or one SO grouping or one SO₂ grouping) and which additionally contains one to three oxo groups (C=O) and/or thioxo groups (C=S) as components of the heterocycle.

2. (Once Amended) The compound according to Claim 1, wherein

n represents the number 0, 1 or 2,

A represents a single bond or represents alkanediyl (alkylene) having 1 to 4 carbon atoms,

R¹ represents hydrogen, represents optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl having 1 to 6 carbon atoms, represents optionally cyano- or halogen-substituted alkenyl having 2 to 6 carbon atoms, or represents optionally cyano-, halogen- or C₁-C₄-alkyl-substituted cycloalkyl having 3 to 6 carbon atoms,

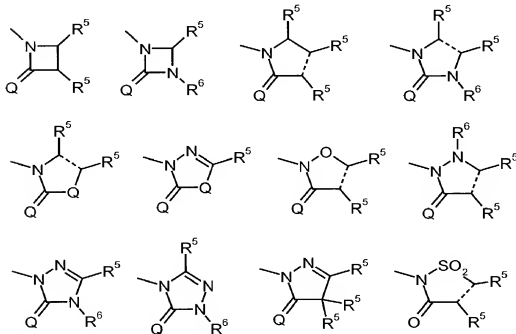
R² represents hydrogen, cyano, carbamoyl, halogen, represents in each case optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkylcarbonyl, alkoxy or alkoxycarbonyl having in each case up to 6 carbon atoms, or represents optionally halogen-substituted alkylthio, alkylsulphinyl or alkylsulphonyl having 1 to 6 carbon atoms,

R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally halogen-, C₁-C₄-alkoxy-,

C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkoxy, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulphonyl having in each case up to 4 carbon atoms in the alkyl groups,

R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkoxy, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulphonyl having in each case up to 4 carbon atoms in the alkyl groups, and

Z represents one of the heterocyclic groupings below



- Q represents oxygen or sulphur,
- R⁵ represents hydrogen, hydroxyl, mercapto, cyano, halogen, represents in each case optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkylcarbonyl, alkoxy, alkoxycarbonyl, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkylamino or dialkylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl, alkenyloxy, alkenylthio or alkenylamino having in each case up to 6 carbon atoms in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkyloxy, cycloalkylthio, cycloalkylamino, cycloalkylalkyl, cycloalkylalkoxy, cycloalkylalkylthio or cycloalkylalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 4 carbon atoms in the alkyl moiety, or represents in each case optionally halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl, phenyloxy, phenylthio, phenylamino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or – if two adjacent radicals R⁵ and R⁵ are located at a double bond - also together with the adjacent radical R⁵ represents a benzo grouping, and
- R⁶ represents hydrogen, hydroxyl, amino, alkylidenamino having up to 4 carbon atoms, represents in each case optionally halogen- or C₁-C₄-alkoxy-substituted alkyl, alkoxy, alkylamino, dialkylamino or alkanoylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl or alkenyloxy having in each case up to 6 carbon atoms in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkylalkyl or cycloalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 3

carbon atoms in the alkyl moiety, or represents in each case optionally halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl or benzyl, or together with an adjacent radical R⁵ or R⁶ represents optionally halogen- or C₁-C₄-alkyl-substituted alkanediyl having 3 to 5 carbon atoms,

where the individual radicals R⁵ and R⁶ – if a plurality of them are attached to the same heterocyclic grouping - can have identical or different meanings within the scope of the above said definition of said radicals.

3. (Once Amended) The compound according to Claim 1 wherein

A represents a single bond, methylene, ethylidene (ethane-1,1-diyl) or dimethylene (ethane-1,2-diyl),

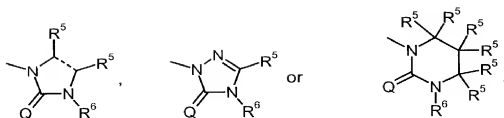
R¹ represents hydrogen, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl, n- or i-propylsulphinyl-, methylsulphonyl-, ethylsulphonyl-, n- or i-propylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine-, chlorine- or bromine-substituted propenyl, butenyl, propinyl or butinyl, or represents in each case optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl,

R² represents hydrogen, cyano, carbamoyl, fluorine, chlorine, bromine, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, acetyl, propionyl, n- or i-butyryl, methoxy, ethoxy, n- or i-propoxy, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, or represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio,

R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulphonyl or diethylaminosulphonyl,

R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulphonyl or diethylaminosulphonyl,

Z represents one of the groupings



R⁵ represents hydrogen, hydroxyl, mercapto, cyano, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, n-, i-, s- or t-butoxy-, methylthio-, ethylthio-, n- or i-propylthio-, n-, i-, s- or t-butylthio-, methylsulphinyl-, ethylsulphinyl-, n- or i-propylsulphinyl-, methylsulphonyl-, ethylsulphonyl-, n- or i-propylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, methylthio, ethylthio, n- or i-propylthio, n-, i-, s- or t-butylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, represents methylamino, ethylamino, n- or i-propylamino, n-, i-, s- or t-butylamino, dimethylamino, diethylamino, di-n-propylamino or di-i-propylamino, represents in each case optionally fluorine- and/or chlorine-substituted ethenyl, propenyl, butenyl, ethinyl, propinyl, butinyl, propenyloxy, butenyloxy, propenylthio, butenylthio, propenylamino or butenylamino, represents in each case optionally fluorine- and/or chlorine-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropyloxy, cyclobutyloxy, cyclopentyloxy, cyclohexyloxy, cyclopropylthio, cyclobutylthio, cyclopentylthio, cyclohexylthio, cyclopropylamino, cyclobutylamino, cyclopentylamino, cyclohexylamino, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, cyclopropylmethoxy, cyclobutylmethoxy, cyclopentylmethoxy, cyclohexylmethoxy, cyclopropylmethylthio, cyclobutylmethylthio, cyclopentylmethylthio, cyclohexylmethylthio, cyclopropylmethylamino, cyclobutylmethylamino, cyclopentylmethylamino or cyclohexylmethylamino, or represents in each case optionally fluorine-, chlorine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, methoxy-, ethoxy-, n-

or i-propoxy-substituted phenyl, phenyloxy, phenylthio, phenylamino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or - if two adjacent radicals R⁵ and R⁵ are located at a double bond - together with the adjacent radical R⁵ also represents a benzo grouping, and

R⁶ represents hydrogen, hydroxyl, amino, represents in each case optionally fluorine- and/or chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i- or s-butyl, methoxy, ethoxy, n- or i-propoxy, methylamino, ethylamino or dimethylamino, represents in each case optionally fluorine- and/or chlorine-substituted ethenyl, propenyl, ethinyl, propinyl or propenyloxy, represents in each case optionally fluorine- and/or chlorine-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, or represents in each case optionally fluorine-, chlorine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, methoxy-, ethoxy-, n- or i-propoxy-substituted phenyl or benzyl, or together with an adjacent radical R⁵ or R⁶ represents in each case optionally methyl- and/or ethyl-substituted propane-1,3-diyl (trimethylene) or butane-1,4-diyl (tetramethylene).

4. (Once Amended) The compound according to Claim 1 wherein

R¹ represents hydrogen, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, methylthio-, ethylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, or represents optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl,

R² represents hydrogen, cyano, carbamoyl, fluorine, chlorine, bromine, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl,

methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, or represents in each case optionally fluorine- and/or chlorine- substituted methylthio, ethylthio, n- or i-propylthio,

- R³ represents hydrogen, nitro, cyano, fluorine, chlorine, bromine, iodine, methyl, ethyl, trifluoromethyl, methoxymethyl, methylthiomethyl, methylsulphinylmethyl, methylsulphonylmethyl, methoxy, ethoxy, difluoromethoxy, trifluoromethoxy, methylthio, ethylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl or dimethylaminosulphonyl,
- R⁴ represents nitro, cyano, fluorine, chlorine, bromine, methyl, ethyl, trifluoromethyl, methoxymethyl, methylthiomethyl, methylsulphinylmethyl, methylsulphonylmethyl, methoxy, ethoxy, difluoromethoxy, trifluoromethoxy, methylthio, ethylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl or dimethylaminosulphonyl,
- R⁵ represents hydrogen, hydroxyl, chlorine, bromine, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, difluoromethyl, dichloromethyl, trifluoromethyl, trichloromethyl, chlorodifluoromethyl, fluorodichloromethyl, fluoroethyl, chloroethyl, difluoroethyl, dichloroethyl, fluoro-n-propyl, fluoro-i-propyl, chloro-n-propyl, chloro-i-propyl, methoxymethyl, ethoxymethyl, methoxyethyl, ethoxyethyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, fluoroethoxy, chloroethoxy, difluoroethoxy, dichloroethoxy, trifluoroethoxy, trichloroethoxy, chlorofluoroethoxy, chlorodifluoroethoxy, fluorodichloroethoxy, methylthio, ethylthio, n- or i-propylthio, fluoroethylthio, chloroethylthio, difluoroethylthio, dichloroethylthio, chlorofluoroethylthio, chlorodifluoroethylthio, fluorodichloroethylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, dimethylamino, propenylthio, butenylthio, propinylthio,

butynylthio, cyclopropyl, cyclopropylmethyl, cyclopropylmethoxy, phenyl or phenoxy, and

R⁶ represents amino, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, methylamino, dimethylamino, cyclopropyl or cyclopropylmethyl, or together with R⁵ represents propane-1,3-diyl (trimethylene), butane-1,4-diyl (tetramethylene) or pentane-1,5-diyl (pentamethylene).

5. (Once Amended) The compound according to Claim 1 wherein

A represents methylene.

6. (Once Amended) The compound according to Claim 2 wherein

Q represents oxygen (O).

7. (Once Amended) The compound according to Claim 1 wherein

R¹ represents cyclopropyl.

8. (Once Amended) The compound according to Claim 1 wherein

R² represents hydrogen, methoxycarbonyl or ethoxycarbonyl.

9. (Once Amended) The compound according to Claim 2 wherein

R⁶ represents methyl, dimethylamino or cyclopropyl.

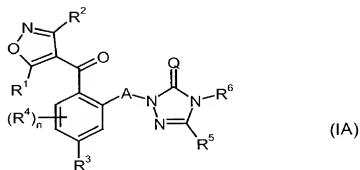
10. (Once Amended) The compound according to Claim 1 wherein

R³ represents chlorine, bromine, cyano, trifluoromethyl or methylsulphonyl.

11. (Once Amended) The compound according to Claim 1 wherein

R^4 represents hydrogen, cyano, chlorine, nitro, methyl, trifluoromethyl, methoxy or methylsulphonyl.

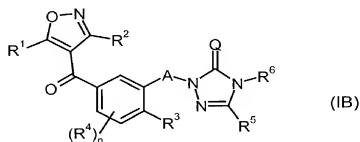
12. (Once Amended) A compound of the Formula (IA)



in which

n , A , Q , R^1 , R^2 , R^3 , R^4 , R^5 and R^6 are each as defined in Claim 2. ✓

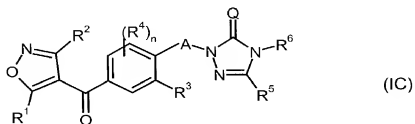
13. (Once Amended) A compound of the Formula (IB)



in which

n , A , Q , R^1 , R^2 , R^3 , R^4 , R^5 and R^6 are each as defined in Claims 2. ✓

14. (Once Amended) A compound of the Formula (IC)

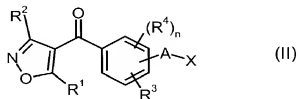


in which

n, A, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined in Claim 2. ✓

16. (Once Amended) A process for preparing a compound of the Formula (I) according to Claim 1 wherein

(a) a benzoylisoxazole of the Formula (II)



in which

n, A, R¹, R², R³ and R⁴ are each as defined in Claim 1 and ✓

X represents halogen

are reacted with heterocycles of the Formula (III)



in which

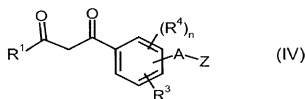
Z is as defined in Claim 1 ,

optionally in the presence of one or more reaction auxiliaries and optionally in the presence of one or more diluents,

or that

- if R² is hydrogen-

(b) a benzoyl ketone of the Formula (IV)



in which

n, A, R¹, R³, R⁴ and Z are each as defined in Claim 1

are reacted with a compound selected from the group consisting of an orthoformic ester and an N,N-dimethylformamide acetal

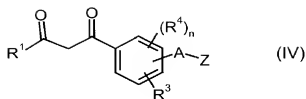
and are subsequently reacted with hydroxylamine or an acid adduct thereof,

optionally in the presence of one or more reaction auxiliaries and optionally in the presence of one or more diluents,

or that

- if R² represents optionally substituted alkoxy carbonyl -

(c) a benzoyl ketone of the Formula (IV)



in which

n , A , R^1 , R^3 , R^4 and Z are each as defined in Claim 1

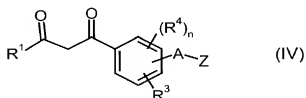
are reacted with a cyanoformic ester and then hydroxylamine, or an acid adduct of hydroxylamine, or are reacted with an alkyl chloro-hydroximino-acetate,

optionally in the presence of one or more reaction auxiliaries and optionally in the presence of one or more diluents,

or that

- if R^2 represents alkylthio -

(d) a benzoyl ketone of the Formula (IV)



in which

n , A , R^1 , R^3 , R^4 and Z are each as defined in Claim 1

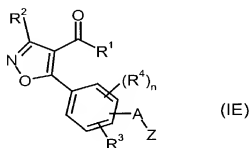
are reacted with carbon disulphide and with an alkylating agent

and then with hydroxylamine or an acid adduct thereof,

optionally in the presence of one or more reaction auxiliaries and optionally in the presence of one or more diluents,

and further optionally comprising the step of conducting electrophilic or nucleophilic substitutions and/or oxidations or reductions on the compounds of the Formula (I) obtained according to one of said processes (a) to (d).

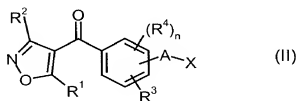
17. (Once Amended) A compound of the Formula (IE)



in which

n , A , R^1 , R^2 , R^3 , R^4 and Z are each as defined in Claim 1.

18. (Once Amended) A compound of the Formula (II)



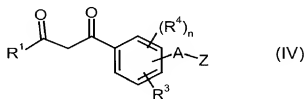
in which

n , A , R^1 , R^2 , R^3 and R^4 are each as defined in Claim 1 and

X represents halogen,

excluding ethyl 4-(2-bromo-methyl-benzoyl)-5-cyclopropyl-isoxazole-3-carboxylate.

19. (Once Amended) A compound of the Formula (IV)



in which

n, A, R¹, R³, R⁴ and Z are each as defined in Claim 1.

20. (Once Amended) An herbicidal composition comprising at least one compound according to Claim 1 and an extender.
21. (Once Amended) A method for controlling undesirable plants comprising applying an effective amount of a compound of the Formula (I) according to Claim 1 to one or more members selected from the group consisting of said plants and an habitat of said plants.

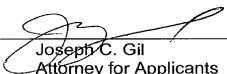
REMARKS

Upon entry of this Preliminary Amendment, Claim 15 will be cancelled. Upon removal of multiple dependencies it is considered to be redundant with Claim 1.

The amendment to the title and abstract have been made to put the application in better form.

The amendments to the claims have been made to place the claims in conformance with U.S. patent practice. These amendments are not in derogation of any prior art, and Applicant respectfully asserts that it is entitled to the claims as amended and any equivalents thereof.

Respectfully submitted,

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VERSION MARKED TO SHOW CHANGES

IN THE TITLE:

Before the first line of the specification, please amend the title as follows:

~~Substituted benzoylisoxazoles~~ --**SUBSTITUTED BENZOYLISOXAZOLES AND THE USE THEREOF AS HERBICIDES--**

IN THE ABSTRACT:

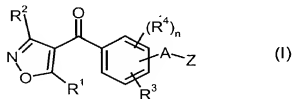
Please replace line 1 of the Abstract with the following:

~~Substituted benzoylisoxazoles~~ --**SUBSTITUTED BENZOYLISOXAZOLES AND THE USE THEREOF AS HERBICIDES--**

IN THE CLAIMS:

Please cancel Claim 15. Please amend the remaining claims as follows:

1. (Once Amended) ~~A~~ Compounds of the ~~general~~ Formula (I),



in which

n represents the number 0, 1, 2 or 3,

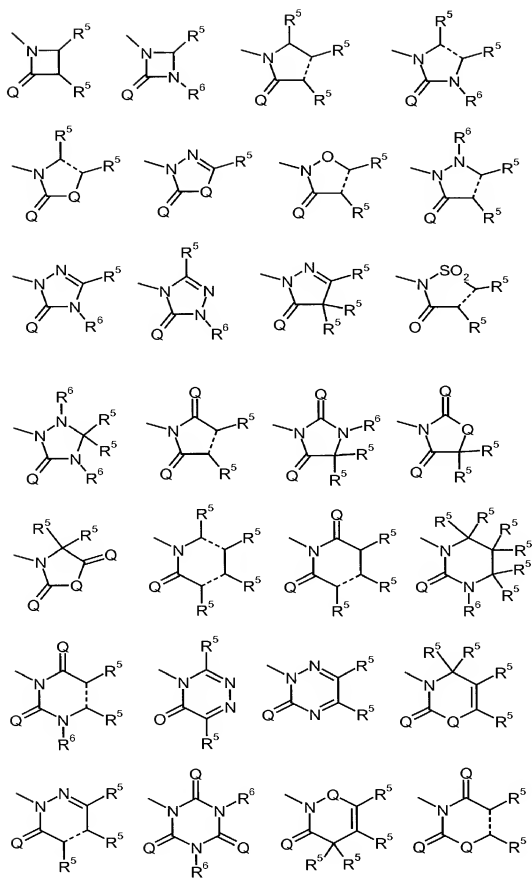
A represents a single bond or represents alkanediyl (alkylene),

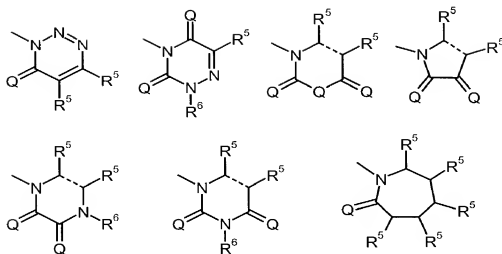
R¹ represents hydrogen or represents in each case optionally substituted alkyl, alkenyl or cycloalkyl,

- R² represents hydrogen, cyano, carbamoyl, halogen, or represents in each case optionally substituted alkyl, alkylcarbonyl, alkoxy, alkoxy carbonyl, alkylthio, alkylsulphinyl or alkylsulphonyl,
- R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or dialkylaminosulphonyl,
- R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or di-alkylaminosulphonyl, and
- Z represents an optionally substituted 4- to 12-membered, saturated or unsaturated, monocyclic or bicyclic, heterocyclic grouping which contains 1 to 4 hetero atoms (up to 4 nitrogen atoms and optionally - alternatively or additionally - one oxygen atom or one sulphur atom, or one SO grouping or one SO₂ grouping) and which additionally contains one to three oxo groups (C=O) and/or thioxo groups (C=S) as components of the heterocycle.
2. (Once Amended) The Compounds according to Claim 1, characterized in that wherein
- n represents the number 0, 1 or 2,
- A represents a single bond or represents alkanediyl (alkylene) having 1 to 4 carbon atoms,
- R¹ represents hydrogen, represents optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkyl-

sulphonyl-substituted alkyl having 1 to 6 carbon atoms, represents optionally cyano- or halogen-substituted alkenyl having 2 to 6 carbon atoms, or represents optionally cyano-, halogen- or C₁-C₄-alkyl-substituted cycloalkyl having 3 to 6 carbon atoms,

- R² represents hydrogen, cyano, carbamoyl, halogen, represents in each case optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkylcarbonyl, alkoxy or alkoxy carbonyl having in each case up to 6 carbon atoms, or represents optionally halogen-substituted alkylthio, alkylsulphinyl or alkylsulphonyl having 1 to 6 carbon atoms,
- R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkoxy, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulphonyl having in each case up to 4 carbon atoms in the alkyl groups,
- R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkoxy, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulphonyl having in each case up to 4 carbon atoms in the alkyl groups, and
- Z represents one of the heterocyclic groupings below





in which the dotted bond is in each case a single bond or a double bond, and each heterocyclic grouping preferably only carries two substituents of the definition R^5 and/or R^6 ,

Q represents oxygen or sulphur,

R^5 represents hydrogen, hydroxyl, mercapto, cyano, halogen, represents in each case optionally cyano-, halogen-, C_1 - C_4 -alkoxy-, C_1 - C_4 -alkylthio-, C_1 - C_4 -alkylsulphinyl- or C_1 - C_4 -alkylsulphonyl-substituted alkyl, alkylcarbonyl, alkoxy, alkoxycarbonyl, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkylamino or dialkylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl, alkenyloxy, alkenylthio or alkenylamino having in each case up to 6 carbon atoms in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkyloxy, cycloalkylthio, cycloalkylamino, cycloalkylalkyl, cycloalkylalkoxy, cycloalkylalkylthio or cycloalkylalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 4 carbon atoms in the alkyl moiety, or represents in each case optionally

halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl, phenyloxy, phenylthio, phenylamino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or – if two adjacent radicals R⁵ and R⁵ are located at a double bond - also together with the adjacent radical R⁵ represents a benzo grouping, and

R⁶ represents hydrogen, hydroxyl, amino, alkylidenamino having up to 4 carbon atoms, represents in each case optionally halogen- or C₁-C₄-alkoxy-substituted alkyl, alkoxy, alkylamino, dialkylamino or alkanoylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl or alkenyloxy having in each case up to 6 carbon atoms in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkylalkyl or cycloalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 3 carbon atoms in the alkyl moiety, or represents in each case optionally halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl or benzyl, or together with an adjacent radical R⁵ or R⁶ represents optionally halogen- or C₁-C₄-alkyl-substituted alkanediyl having 3 to 5 carbon atoms,

where the individual radicals R⁵ and R⁶ – if a plurality of them are attached to the same heterocyclic grouping - can have identical or different meanings within the scope of the above said definition of said radicals.

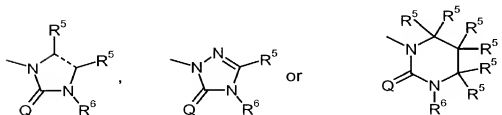
3. (Once Amended) The ~~G~~compounds according to Claim 1 ~~or 2, characterized in that~~ wherein

A represents a single bond, methylene, ethylidene (ethane-1,1-diyl) or dimethylene (ethane-1,2-diyl),

- R¹ represents hydrogen, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl, n- or i-propylsulphinyl-, methylsulphonyl-, ethylsulphonyl-, n- or i-propylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine-, chlorine- or bromine-substituted propenyl, butenyl, propinyl or butinyl, or represents in each case optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl,
- R² represents hydrogen, cyano, carbamoyl, fluorine, chlorine, bromine, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, acetyl, propionyl, n- or i-butyryl, methoxy, ethoxy, n- or i-propoxy, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, or represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio,
- R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulphonyl or diethylaminosulphonyl,

R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulphonyl or diethylaminosulphonyl,

Z represents one of the groupings



R⁵ represents hydrogen, hydroxyl, mercapto, cyano, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, n-, i-, s- or t-butoxy-, methylthio-, ethylthio-, n- or i-propylthio-, n-, i-, s- or t-butylthio-, methylsulphinyl-, ethylsulphinyl-, n- or i-propylsulphinyl-, methylsulphonyl-, ethylsulphonyl-, n- or i-propylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, methylthio, ethylthio, n- or i-propylthio, n-, i-, s- or t-butylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, represents methylamino, ethylamino, n- or i-propylamino, n-, i-, s- or t-butylamino,

dimethylamino, diethylamino, di-n-propylamino or di-i-propylamino, represents in each case optionally fluorine- and/or chlorine-substituted ethenyl, propenyl, butenyl, ethinyl, propinyl, butinyl, propenyloxy, butenyloxy, propenylthio, butenylthio, propenylamino or butenylamino, represents in each case optionally fluorine- and/or chlorine-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropyloxy, cyclobutyloxy, cyclopentyloxy, cyclohexyloxy, cyclopropylthio, cyclobutylthio, cyclopentylthio, cyclohexylthio, cyclopropylamino, cyclobutylamino, cyclopentylamino, cyclohexylamino, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, cyclopropylmethoxy, cyclobutylmethoxy, cyclopentylmethoxy, cyclohexylmethoxy, cyclopropylmethylthio, cyclobutylmethylthio, cyclopentylmethylthio, cyclohexylmethylthio, cyclopropylmethylamino, cyclobutylmethylamino, cyclopentylmethylamino or cyclohexylmethylamino, or represents in each case optionally fluorine-, chlorine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, methoxy-, ethoxy-, n- or i-propoxy-substituted phenyl, phenyloxy, phenylthio, phenylamino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or - if two adjacent radicals R^5 and R^5 are located at a double bond - together with the adjacent radical R^5 also represents a benzo grouping, and

R^6 represents hydrogen, hydroxyl, amino, represents in each case optionally fluorine- and/or chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i- or s-butyl, methoxy, ethoxy, n- or i-propoxy, methylamino, ethylamino or dimethylamino, represents in each case optionally fluorine- and/or chlorine-substituted ethenyl, propenyl, ethinyl, propinyl or propenyloxy, represents in each case optionally fluorine- and/or chlorine-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, or represents in each case optionally fluorine-, chlorine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, methoxy-, ethoxy-, n- or i-propoxy-substituted phenyl or benzyl,

or together with an adjacent radical R⁵ or R⁶ represents in each case optionally methyl- and/or ethyl-substituted propane-1,3-diyl (trimethylene) or butane-1,4-diyl (tetramethylene).

4. (Once Amended) ~~The C~~compounds according to ~~any of Claims 1 to 3,~~
~~characterized in that wherein~~

- R¹ represents hydrogen, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, methylthio-, ethylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, or represents optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl,
- R² represents hydrogen, cyano, carbamoyl, fluorine, chlorine, bromine, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, or represents in each case optionally fluorine- and/or chlorine- substituted methylthio, ethylthio, n- or i-propylthio,
- R³ represents hydrogen, nitro, cyano, fluorine, chlorine, bromine, iodine, methyl, ethyl, trifluoromethyl, methoxymethyl, methylthiomethyl, methylsulphinylmethyl, methylsulphonylmethyl, methoxy, ethoxy, difluoromethoxy, trifluoromethoxy, methylthio, ethylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl or dimethylaminosulphonyl,
- R⁴ represents nitro, cyano, fluorine, chlorine, bromine, methyl, ethyl, trifluoromethyl, methoxymethyl, methylthiomethyl, methylsulphinylmethyl, methylsulphonylmethyl, methoxy, ethoxy, difluoromethoxy, trifluoromethoxy, methylthio, ethylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl or dimethylaminosulphonyl,

R⁵ represents hydrogen, hydroxyl, chlorine, bromine, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, difluoromethyl, dichloromethyl, trifluoromethyl, trichloromethyl, chlorodifluoromethyl, fluorodichloromethyl, fluoroethyl, chloroethyl, difluoroethyl, dichloroethyl, fluoro-n-propyl, fluoro-i-propyl, chloro-n-propyl, chloro-i-propyl, methoxymethyl, ethoxymethyl, methoxyethyl, ethoxyethyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, fluoroethoxy, chloroethoxy, difluoroethoxy, dichloroethoxy, trifluoroethoxy, trichloroethoxy, chlorofluoroethoxy, chlorodifluoroethoxy, fluorodichloroethoxy, methylthio, ethylthio, n- or i-propylthio, fluoroethylthio, chloroethylthio, difluoroethylthio, dichloroethylthio, chlorofluoroethylthio, chlorodifluoroethylthio, fluorodichloroethylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, dimethylamino, propenylthio, butenylthio, propinylthio, butinylthio, cyclopropyl, cyclopropylmethyl, cyclopropylmethoxy, phenyl or phenoxy, and

R⁶ represents amino, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, methylamino, dimethylamino, cyclopropyl or cyclopropylmethyl, or together with R⁵ represents propane-1,3-diyl (trimethylene), butane-1,4-diyl (tetramethylene) or pentane-1,5-diyl (pentamethylene).

5. (Once Amended) The Gcompounds according to ~~any of Claims 1 to 4,~~
characterized in that wherein

A represents methylene.

6. (Once Amended) The Gcompounds according to ~~any of Claims 24 to 5,~~
characterized in that wherein

Q represents oxygen (O).

7. (Once Amended) ~~The~~ Compounds according to ~~any of Claims 1 to 6,~~
characterized in that wherein

R¹ represents cyclopropyl.

8. (Once Amended) ~~The~~ Compounds according to ~~any of Claims 1 to 7,~~
characterized in that wherein

R² represents hydrogen, methoxycarbonyl or ethoxycarbonyl.

9. (Once Amended) ~~The~~ Compounds according to ~~any of Claims 2 to 8,~~
characterized in that wherein

R⁶ represents methyl, dimethylamino or cyclopropyl.

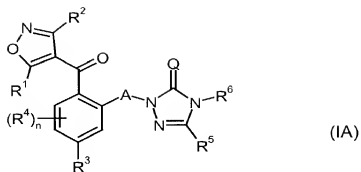
10. (Once Amended) ~~The~~ Compounds according to ~~any of Claims 1 to 9,~~
characterized in that wherein

R³ represents chlorine, bromine, cyano, trifluoromethyl or methylsulphonyl.

11. (Once Amended) ~~The~~ Compounds according to ~~any of Claims 1 to 10,~~
characterized in that wherein

R⁴ represents hydrogen, cyano, chlorine, nitro, methyl, trifluoromethyl,
methoxy or methylsulphonyl.

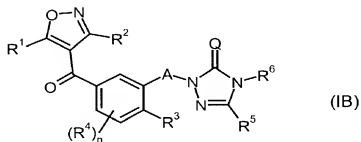
12. (Once Amended) ~~A~~ Compounds according to ~~any of Claims 1 to 11 of the~~
general formula (IA)



in which

n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined in ~~any of Claims 24 to 44.~~

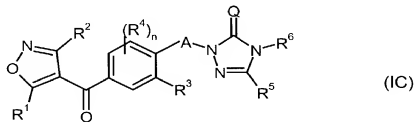
13. (Once Amended) ~~A Compounds according to any of Claims 1 to 14 of the general Formula (IB)~~



in which

n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined in ~~any of Claims 2 4 to 44.~~

14. (Once Amended) ~~A Compounds according to any of Claims 1 to 14 of the general Formula (IC)~~

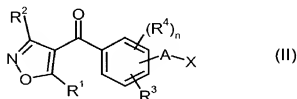


in which

n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined in ~~any of Claims 2 to 14.~~

16. (Once Amended) ~~A~~ Process for preparing a compounds of the Formula (I) according to ~~any of Claims 1 to 15, characterized in that wherein~~

(a) a benzoylisoxazoles of the general Formula (II)



in which

n, A, R¹, R², R³ and R⁴ are each as defined in ~~any of Claims 1 to 5, 7, 8, 10 and 14~~ and

X represents halogen

are reacted with heterocycles of the ~~general Formula (III)~~



in which

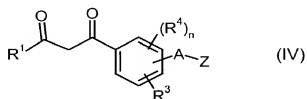
Z is as defined in Claims 1 ~~or 2~~,

~~if appropriate optionally~~ in the presence of one or more reaction auxiliaries
and ~~if appropriate optionally~~ in the presence of one or more diluents,

or that

- if R² is hydrogen-

(b) a benzoyl ketones of the general Formula (IV)



in which

n, A, R¹, R³, R⁴ and Z are each as defined in ~~any of Claims 1 to 5, 7, 10 and~~
44

are reacted with a compound selected from the group consisting of an
orthoformic ester ~~or~~ and an N,N-dimethylformamide acetal

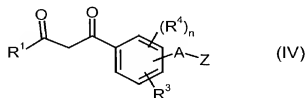
and are subsequently reacted with hydroxylamine or an acid adduct thereof,

~~if appropriate~~ optionally in the presence of one or more reaction auxiliaries
and ~~if appropriate~~ optionally in the presence of one or more diluents,

or that

- if R² represents optionally substituted alkoxy carbonyl -

(c) a benzoyl ketones of the general Formula (IV)



[illegible]

n, A, R¹, R³, R⁴ and Z are each as defined in any of Claims 1 to 5, 7, 10 and 11

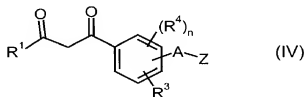
are reacted with a cyanoformic ester and then ~~with a compound selected from the group consisting of~~ hydroxylamine, or an acid adduct of hydroxylamine thereof, or are reacted with and an alkyl chloro-hydroximino-acetate.

if appropriate optionally in the presence of one or more reaction auxiliaries
and if appropriate optionally in the presence of one or more diluents,

or that

- if R^2 represents alkylthio -

(d) a benzoyl ketones of the general Formula (IV)



in which

n, A, R¹, R³, R⁴ and Z are each as defined in any of Claims 1 to 5, 7, 10 and

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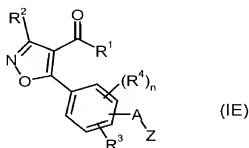
are reacted with carbon disulphide and with an alkylating agent

and then with hydroxylamine or an acid adduct thereof,

if ~~appropriate~~ optionally in the presence of one or more reaction auxiliaries and if ~~appropriate~~ optionally in the presence of one or more diluents,

and further optionally comprising the step of conducting electrophilic or nucleophilic substitutions and/or oxidations or reductions ~~within the scope of the definition of the substituents are, if appropriate, subsequently carried out in a customary manner~~ on the compounds of the ~~f~~Formula (I) obtained according to one of said processes (a) to (d).

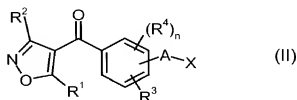
17. (Once Amended) A ~~C~~ompounds of the ~~general f~~Formula (IE)



in which

n, A, R¹, R², R³, R⁴ and Z are each as defined in ~~any of Claims 1 to 5, 7, 8, 10 and 11.~~

18. (Once Amended) A ~~C~~ompounds of the ~~general f~~Formula (II), ~~except for ethyl 4-(2-bromo methyl benzoyl) 5-cyclopropyl isoxazole 3-carboxylate,~~



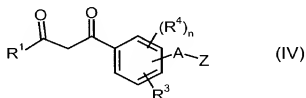
in which

n, A, R¹, R², R³ and R⁴ are each as defined in ~~any of Claims 1 to 5, 7, 8, 10 and 11 and~~

X represents halogen,

excluding ethyl 4-(2-bromo-methyl-benzoyl)-5-cyclopropyl-isoxazole-3-carboxylate.

19. (Once Amended) A ~~C~~compounds of the ~~general~~ Formula (IV)



in which

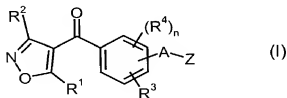
n, A, R^1 , R^3 , R^4 and Z are each as defined in ~~any of Claims 1 to 5, 7, 10 and 14.~~

20. (Once Amended) An Hherbicide compositions, ~~characterized in that they comprise comprising~~ at least one compound according to ~~any of Claims Claim~~ 1 to 14 and ~~customary an~~ extenders.
21. (Once Amended) ~~Use of at least one A method for controlling undesirable plants comprising applying an effective amount of a compound of the Formula (I) according to any of Claims 1 to 14 for controlling undesirable plants to one or more members selected from the group consisting of said plants and an habitat of said plants.~~

SUBSTITUTED BENZOYLISOXAZOLES AND THE USE THEREOF AS HERBICIDES

Abstract

The invention relates to novel substituted benzoylisoxazoles of the general formula (I),



in which

n represents the number 0, 1, 2 or 3,

A represents a single bond or represents alkanediyl (alkylene),

R^1 represents hydrogen or represents in each case optionally substituted alkyl, alkenyl or cycloalkyl,

R^2 represents hydrogen, cyano, carbamoyl, halogen, or represents in each case optionally substituted alkyl, alkylcarbonyl, alkoxy, alkoxy carbonyl or alkylthio, alkylsulphinyl or alkylsulphonyl,

R^3 represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or dialkylaminosulphonyl,

and to processes for their preparation and to their use as herbicides.

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- 1 -

JC10 Rec'd PCT/PTO 02 NOV 2001

Substituted benzoylisoxazoles

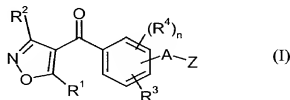
The invention relates to novel substituted benzoylisoxazoles, to processes for their preparation and to their use as herbicides.

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It is already known that certain substituted benzoylisoxazoles have herbicidal properties (cf. EP-A-418 175, EP-A-487 357, EP-A-527 036, EP-A-527 037, EP-A-560 483, EP-A-609 797, EP-A-609 798, EP-A-636 622, US-A-5 834 402, US-A-5 863 865, WO-A-96/26192, WO-A-97/27187, WO-A-97/43270, WO-A-99/03856). However, the activity of these compounds is not entirely satisfactory.

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This invention, accordingly, provides the novel compounds of the general formula (I),



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in which

n represents the number 0, 1, 2 or 3,

20

A represents a single bond or represents alkanediyl (alkylene),

R¹ represents hydrogen or represents in each case optionally substituted alkyl, alkenyl or cycloalkyl,

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R² represents hydrogen, cyano, carbamoyl, halogen, or represents in each case optionally substituted alkyl, alkylcarbonyl, alkoxy, alkoxycarbonyl, alkylthio, alkylsulphinyl or alkylsulphonyl,

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Donna J. Veatch

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R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or dialkylaminosulphonyl,

R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or dialkylaminosulphonyl, and

Z represents an optionally substituted 4- to 12-membered, saturated or unsaturated, monocyclic or bicyclic, heterocyclic grouping which contains 1 to 4 hetero atoms (up to 4 nitrogen atoms and optionally - alternatively or additionally - one oxygen atom or one sulphur atom, or one SO grouping or one SO₂ grouping) and which additionally contains one to three oxo groups (C=O) and/or thioxo groups (C=S) as components of the heterocycle.

In the definitions, the hydrocarbon chains, such as alkyl or alkanediyl - including in combination with hetero atoms, such as alkoxy - are in each case straight-chain or branched.

n preferably represents the number 0, 1 or 2.

A preferably represents a single bond or represents alkanediyl (alkylene) having 1 to 4 carbon atoms.

R¹ preferably represents hydrogen, represents optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl having 1 to 6 carbon atoms, represents optionally cyano- or halogen-substituted alkenyl having 2 to 6 carbon atoms, or

represents optionally cyano-, halogen- or C₁-C₄-alkyl-substituted cycloalkyl having 3 to 6 carbon atoms.

5 R² preferably represents hydrogen, cyano, carbamoyl, halogen, represents in each case optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkylcarbonyl, alkoxy or alkoxycarbonyl having in each case up to 6 carbon atoms, or represents in each case optionally halogen-substituted alkylthio, alkylsulphinyl or alkylsulphonyl having in each case 1 to 6 carbon atoms.

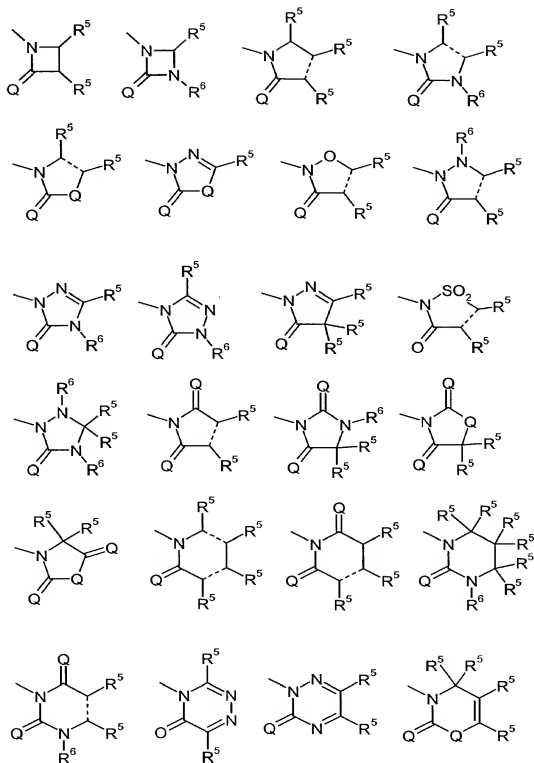
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 R³ preferably represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thio-carbamoyl, halogen, represents in each case optionally halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkoxy, alkylthio, alkylsulphinyl or alkylsulphonyl having
15 in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulphonyl having in each case up to 4 carbon atoms in the alkyl groups.

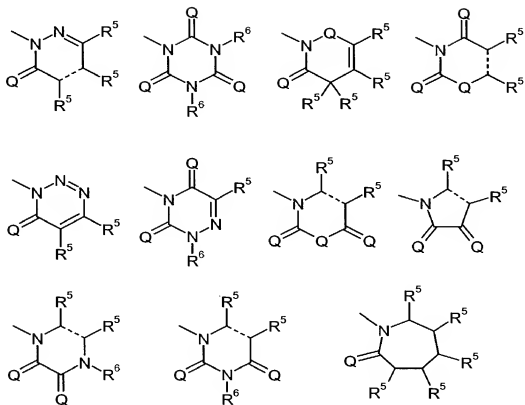
 R⁴ preferably represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkoxy, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to
20 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulphonyl having in each case up to 4 carbon atoms in the alkyl
25 groups, and

Z preferably represents one of the heterocyclic groupings below

- 4 -



- 5 -



in which the dotted bond is in each case a single bond or a double bond, and each heterocyclic grouping preferably only carries two substituents of the definition R⁵ and/or R⁶,

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Q represents oxygen or sulphur,

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R⁵ represents hydrogen, hydroxyl, mercapto, cyano, halogen, represents in each case optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkylcarbonyl, alkoxy, alkoxy carbonyl, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkylamino or dialkylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl, alkenyloxy, alkenylthio, alkynylthio or alkenylamino having in each case up to 6 carbon atoms

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- 6 -

in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkyloxy, cycloalkylthio, cycloalkylamino, cycloalkylalkyl, cycloalkylalkoxy, cycloalkylalkylthio or cycloalkylalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 4 carbon atoms in the alkyl moiety, or represents in each case optionally halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl, phenyloxy, phenylthio, phenylamino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or – if two adjacent radicals R⁵ and R⁵ are located at a double bond - also together with the adjacent radical R⁵ represents a benzo grouping, and

R⁶ represents hydrogen, hydroxyl, amino, alkylidenamino having up to 4 carbon atoms, represents in each case optionally halogen- or C₁-C₄-alkoxy-substituted alkyl, alkoxy, alkylamino, dialkylamino or alkanoylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl or alkenyloxy having in each case up to 6 carbon atoms in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkylalkyl or cycloalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 3 carbon atoms in the alkyl moiety, or represents in each case optionally halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl or benzyl, or together with an adjacent radical R⁵ or R⁶ represents optionally halogen- or C₁-C₄-alkyl-substituted alkanediyl having 3 to 5 carbon atoms,

where the individual radicals R⁵ and R⁶ – if a plurality of them are attached to the same heterocyclic grouping - can have identical or different meanings within the scope of the above definition.

Q preferably represents oxygen (O).

R⁵ preferably represents hydrogen, hydroxyl, mercapto, cyano, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, n-, i-, s- or t-butoxy-, methylthio-, ethylthio-, n- or i-propylthio-, n-, i-, s- or t-butylthio-, methylsulphinyl-, ethylsulphinyl-, n- or i-propylsulphinyl-, methylsulphonyl-, ethylsulphonyl-, n- or i-propylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, methylthio, ethylthio, n- or i-propylthio, n-, i-, s- or t-butylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, represents methylamino, ethylamino, n- or i-propylamino, n-, i-, s- or t-butylamino, dimethylamino, diethylamino, di-n-propylamino or di-i-propylamino, represents in each case optionally fluorine- and/or chlorine-substituted ethenyl, propenyl, butenyl, ethinyl, propinyl, butinyl, propenyloxy, butenyloxy, propenylthio, butenylthio, propenylamino or butenylamino, represents in each case optionally fluorine- and/or chlorine-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropyloxy, cyclobutyloxy, cyclopentyloxy, cyclohexyloxy, cyclopropylthio, cyclobutylthio, cyclopentylthio, cyclohexylthio, cyclopropylamino, cyclobutylamino, cyclopentylamino, cyclohexylamino, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, cyclopropylmethoxy, cyclobutylmethoxy, cyclopentylmethoxy, cyclohexylmethoxy, cyclopropylmethylthio, cyclobutylmethylthio, cyclopentylmethylthio, cyclohexylmethylthio, cyclopropylmethylamino, cyclobutylmethylamino, cyclopentylmethylamino or cyclohexylmethylamino, or represents in each case optionally fluorine-, chlorine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, methoxy-, ethoxy-, n- or i-propoxy-substituted phenyl, phenyloxy, phenylthio, phenylamino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or - if two adjacent radicals

R^5 and R^5 are located at a double bond - together with the adjacent radical R^5 also represents a benzo grouping.

5 R^6 preferably represents hydrogen, hydroxyl, amino, represents in each case optionally fluorine- and/or chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i- or s-butyl, methoxy, ethoxy, n- or i-propoxy, methylamino, ethylamino or dimethylamino, represents in each case optionally fluorine- and/or chlorine-substituted ethenyl, propenyl, ethinyl, propinyl or propenyloxy, represents in each case optionally fluorine- and/or chlorine-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, or represents in each case optionally fluorine-, chlorine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, methoxy-, ethoxy-, n- or i-propoxy-substituted phenyl or benzyl, or together with an adjacent radical R^5 or R^6 represents in 10 each case optionally methyl- and/or ethyl-substituted propane-1,3-diyl (trimethylene) or butane-1,4-diyl (tetramethylene).

A particularly preferably represents a single bond, methylene, ethylidene (ethane-1,1-diyl) or dimethylene (ethane-1,2-diyl).

20 R^1 particularly preferably represents hydrogen, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl, n- or i-propylsulphinyl-, methylsulphonyl-, ethylsulphonyl-, n- or i-propylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine-, chlorine- or bromine-substituted propenyl, butenyl, propinyl or butinyl, or represents in each case optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl.

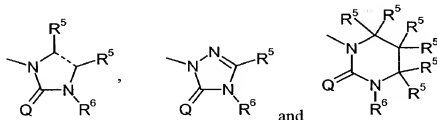
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- R² particularly preferably represents hydrogen, cyano, carbamoyl, fluorine, chlorine, bromine, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, acetyl, propionyl, n- or i-butyryl, methoxy, ethoxy, n- or i-propoxy, methoxy-carbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, or represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl or ethylsulphonyl.
- 5
- 10 R³ particularly preferably represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulphonyl or diethylaminosulphonyl.
- 15
- 20
- 25 R⁴ particularly preferably represents nitro, cyano, carboxyl, carbamoyl, thio-carbamoyl, fluorine, chlorine, bromine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-
- 30

- 10 -

substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulphonyl or diethylaminosulphonyl.

Z particularly preferably represents the heterocyclic groupings



R⁵ particularly preferably represents hydrogen, hydroxyl, chlorine, bromine, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, difluoromethyl, dichloromethyl, trifluoromethyl, trichloromethyl, chlorodifluoromethyl, fluoro-dichloromethyl, fluoroethyl, chloroethyl, difluoroethyl, dichloroethyl, fluoro-n-propyl, fluoro-i-propyl, chloro-n-propyl, chloro-i-propyl, methoxymethyl, ethoxymethyl, methoxyethyl, ethoxyethyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, fluoroethoxy, chloroethoxy, difluoroethoxy, dichloroethoxy, trifluoroethoxy, trichloroethoxy, chlorofluoroethoxy, chlorodifluoroethoxy, fluorodichloroethoxy, methylthio, ethylthio, n- or i-propylthio, fluoroethylthio, chloroethylthio, difluoroethylthio, dichloroethylthio, chloro-fluoroethylthio, chlorodifluoroethylthio, fluorodichloroethylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, dimethylamino, propenylthio, butenylthio, propinylthio, butinylthio, cyclopropyl, cyclopropylmethyl, cyclopropyl-methoxy, phenyl or phenoxy.

R⁶ particularly preferably represents amino, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, methylamino, dimethylamino, cyclopropyl or

cyclopropylmethyl, or together with R⁵ represents propane-1,3-diyl (trimethylene), butane-1,4-diyl (tetramethylene) or pentane-1,5-diyl (pentamethylene).

5 A very particularly preferably represents a single bond or represents methylene.

 R¹ very particularly preferably represents hydrogen, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, methylthio-, ethylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, or represents optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl.

10

 R² very particularly preferably represents hydrogen, cyano, carbamoyl, fluorine, chlorine, bromine, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, or represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl or ethylsulphonyl.

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 R³ very particularly preferably represents hydrogen, nitro, cyano, fluorine, chlorine, bromine, iodine, methyl, ethyl, trifluoromethyl, methoxymethyl, methylthiomethyl, methylsulphinylmethyl, methylsulphonylmethyl, methoxy, ethoxy, difluoromethoxy, trifluoromethoxy, methylthio, ethylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl or dimethylaminosulphonyl.

25

 R⁴ very particularly preferably represents nitro, cyano, fluorine, chlorine, bromine, methyl, ethyl, trifluoromethyl, methoxymethyl, methylthiomethyl, methylsulphinylmethyl, methylsulphonylmethyl, methoxy, ethoxy, difluoro-

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methoxy, trifluoromethoxy, methylthio, ethylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl or dimethylaminosulphonyl.

A most preferably represents methylene.

5

R¹ most preferably represents cyclopropyl.

R² most preferably represents hydrogen, methoxycarbonyl or ethoxycarbonyl.

10 R³ most preferably represents chlorine, bromine, cyano, trifluoromethyl or methylsulphonyl.

R⁴ most preferably represents hydrogen, cyano, chlorine, nitro, methyl, trifluoromethyl, methoxy or methylsulphonyl.

15

Preference according to the invention is given to those compounds of the formula (I) which contain a combination of the meanings listed above as being preferred.

20 Particular preference according to the invention is given to those compounds of the formula (I) which contain a combination of the meanings listed above as being particularly preferred.

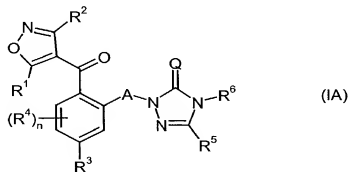
25 Very particular preference according to the invention is given to those compounds of the formula (I) which contain a combination of the meanings listed above as being very particularly preferred.

Most preference according to the invention is given to those compounds of the formula (I) which contain a combination of the meanings listed above as being most preferred.

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- 13 -

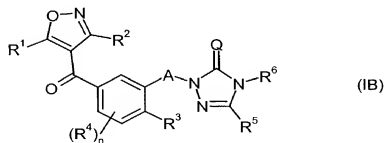
Among the meanings given as preferred, particularly preferred, very particularly preferred or most preferred, still greater emphasis is given to the compounds of the general formula (IA)



in which

n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined above, with very particular emphasis on the compounds of the formula (IA) in which A represents methylene.

Moreover, among the meanings given as being preferred, particularly preferred, very particularly preferred or most particularly preferred, still greater emphasis is given to the compounds of the general formula (IB)

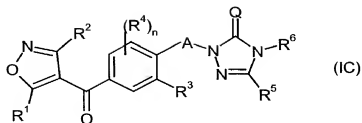


in which

n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined above.

Furthermore, among the meanings given as being preferred, particularly preferred, very particularly preferred or most preferred, still greater emphasis is given to those compounds of the general formula (IC)

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in which

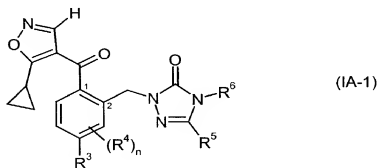
5 n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined above.

The abovementioned general or preferred radical definitions apply both to the end products of the formula (I) and, correspondingly, to the starting materials or intermediates required in each case for the preparation. These radical definitions can be combined with one another as desired, i.e. including combinations between the given preferred ranges.

Examples of compounds of the general formula (I) according to the invention are listed in the groups below.

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Group 1

















Here, R³, (R⁴)_n, R⁵ and R⁶ each have, for example, the meanings given in the table below:

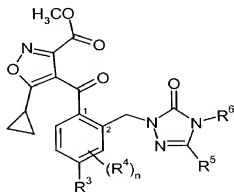
20

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
H	-	CF ₃	CH ₃
F	-	CF ₃	CH ₃
Cl	-	CF ₃	CH ₃
Br	-	CF ₃	CH ₃
I	-	CF ₃	CH ₃
NO ₂	-	CF ₃	CH ₃
CN	-	CF ₃	CH ₃
CH ₃	-	CF ₃	CH ₃
OCH ₃	-	CF ₃	CH ₃
CF ₃	-	CF ₃	CH ₃
OCHF ₂	-	CF ₃	CH ₃
OCF ₃	-	CF ₃	CH ₃
SO ₂ CH ₃	-	CF ₃	CH ₃
H	-	OCH ₃	CH ₃
F	-	OCH ₃	CH ₃
Cl	-	OCH ₃	CH ₃
Br	-	OCH ₃	CH ₃
I	-	OCH ₃	CH ₃
NO ₂	-	OCH ₃	CH ₃
CN	-	OCH ₃	CH ₃
CH ₃	-	OCH ₃	CH ₃
OCH ₃	-	OCH ₃	CH ₃
CF ₃	-	OCH ₃	CH ₃
OCHF ₂	-	OCH ₃	CH ₃
OCF ₃	-	OCH ₃	CH ₃
SO ₂ CH ₃	-	OCH ₃	CH ₃
H	-	SCH ₃	CH ₃
F	-	SCH ₃	CH ₃

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	-	SCH ₃	CH ₃
Br	-	SCH ₃	CH ₃
I	-	SCH ₃	CH ₃
NO ₂	-	SCH ₃	CH ₃
CN	-	SCH ₃	CH ₃
CH ₃	-	SCH ₃	CH ₃
OCH ₃	-	SCH ₃	CH ₃
CF ₃	-	SCH ₃	CH ₃
OCHF ₂	-	SCH ₃	CH ₃
OCF ₃	-	SCH ₃	CH ₃
SO ₂ CH ₃	-	SCH ₃	CH ₃
H	-	OC ₂ H ₅	CH ₃
F	-	OC ₂ H ₅	CH ₃
Cl	-	OC ₂ H ₅	CH ₃
Br	-	OC ₂ H ₅	CH ₃
I	-	OC ₂ H ₅	CH ₃
NO ₂	-	OC ₂ H ₅	CH ₃
CN	-	OC ₂ H ₅	CH ₃
CH ₃	-	OC ₂ H ₅	CH ₃
OCH ₃	-	OC ₂ H ₅	CH ₃
CF ₃	-	OC ₂ H ₅	CH ₃
OCHF ₂	-	OC ₂ H ₅	CH ₃
OCF ₃	-	OC ₂ H ₅	CH ₃
SO ₂ CH ₃	-	OC ₂ H ₅	CH ₃
H	-	N(CH ₃) ₂	CH ₃
F	-	N(CH ₃) ₂	CH ₃
Cl	-	N(CH ₃) ₂	CH ₃
Br	-	N(CH ₃) ₂	CH ₃
I	-	N(CH ₃) ₂	CH ₃

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
NO ₂	-	N(CH ₃) ₂	CH ₃
CN	-	N(CH ₃) ₂	CH ₃
CH ₃	-	N(CH ₃) ₂	CH ₃
OCH ₃	-	N(CH ₃) ₂	CH ₃
CF ₃	-	N(CH ₃) ₂	CH ₃
OCHF ₂	-	N(CH ₃) ₂	CH ₃
OCF ₃	-	N(CH ₃) ₂	CH ₃
SO ₂ CH ₃	-	N(CH ₃) ₂	CH ₃
H	-	OCH ₃	
F	-	OCH ₃	
Cl	-	OCH ₃	
Br	-	OCH ₃	
I	-	OCH ₃	
NO ₂	-	OCH ₃	
CN	-	OCH ₃	
CH ₃	-	OCH ₃	
OCH ₃	-	OCH ₃	
CF ₃	-	OCH ₃	

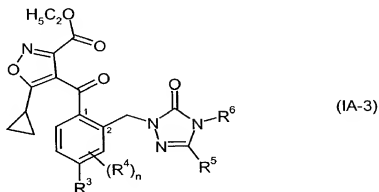
R^3	(position-) $(R^4)_n$	R^5	R^6
$OCHF_2$	-	OCH_3	
OCF_3	-	OCH_3	
SO_2CH_3	-	OCH_3	
H	(3-) Cl	CF_3	CH_3
F	(3-) Cl	CH_3	CH_3
Cl	(3-) Cl	OCH_3	CH_3
Br	(3-) Cl	Br	
Cl	(3-) Cl	CF_3	CH_3
NO_2	(3-) Cl	CH_3	CH_3
Cl	(3-) Cl	SCH_3	CH_3
CH_3	(3-) Cl	Cl	CH_3
OCH_3	(3-) Cl	OCH_3	CH_3
CF_3	(3-) Cl	CF_3	CH_3
$OCHF_2$	(3-) Cl	CH_3	CH_3
OCF_3	(3-) Cl	CH_3	CH_3
SO_2CH_3	(3-) Cl	OCH_3	CH_3

Group 2

(IA-2)

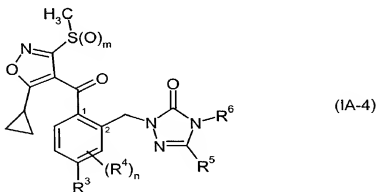
Here, R^3 , $(R^4)_n$, R^5 and R^6 each have, for example, the meanings given for Group 1.

Group 3



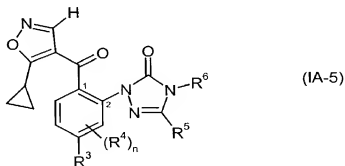
5 Here, R^3 , $(R^4)_n$, R^5 and R^6 each have, for example, the meanings given for Group 1.

Group 4



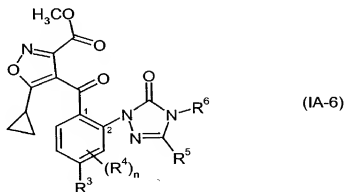
10 Here, R^3 , $(R^4)_n$, R^5 and R^6 each have, for example, the meanings given for Group 1, and m represents the number 0, 1 or 2.

Group 5



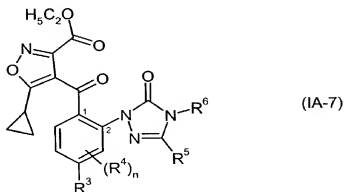
Here, R^3 , $(R^4)_n$, R^5 and R^6 each have, for example, the meanings given for Group 1.

Group 6

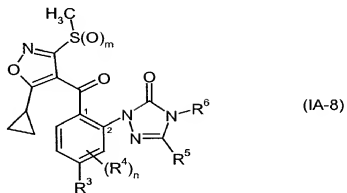


Here, R^3 , $(R^4)_n$, R^5 and R^6 each have, for example, the meanings given for Group 1.

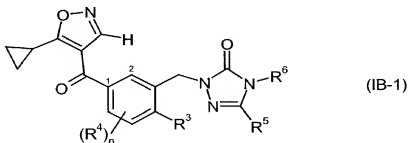
Group 7



Here, R^3 , $(R^4)_n$, R^5 and R^6 each have, for example, the meanings given for Group 1.






Group 8





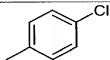
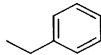

5 Here, R^3 , $(R^4)_n$, R^5 and R^6 each have, for example, the meanings given for group 1, and m represents the number 0, 1 or 2.






Group 9





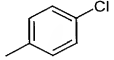
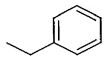
10







Here, R^3 , $(R^4)_n$, R^5 and R^6 each have, for example, the meanings given in the table below:





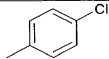
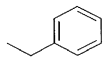
R^3	(position-) (R^4) _n	R^5	R^6
Cl	(2-) Cl	CF ₃	CH ₃
Cl	(2-) Cl	SCH ₃	CH ₃
Cl	(2-) Cl	SC ₂ H ₅	CH ₃
Cl	(2-) Cl	SC ₃ H ₇	CH ₃
Cl	(2-) Cl	SC ₃ H ₇ -i	CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl	SCH=C=CH ₂	CH ₃
Cl	(2-) Cl	SCH ₂ CN	CH ₃
Cl	(2-) Cl	SCH ₂ CH ₂ CN	CH ₃
Cl	(2-) Cl	OCH ₃	CH ₃
Cl	(2-) Cl	OC ₂ H ₅	CH ₃
Cl	(2-) Cl	OC ₃ H ₇	CH ₃
Cl	(2-) Cl	OC ₃ H ₇ -i	CH ₃
Cl	(2-) Cl	OC ₄ H ₉	CH ₃
Cl	(2-) Cl	OCH ₂ CF ₃	CH ₃















R^3	(position-) $(R^4)_n$	R^5	R^6
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl	OC ₆ H ₅	CH ₃
Cl	(2-) Cl	H	CH ₃
Cl	(2-) Cl	CH ₃	CH ₃
Cl	(2-) Cl	C ₂ H ₅	CH ₃
Cl	(2-) Cl	C ₃ H ₇	CH ₃
Cl	(2-) Cl	C ₃ H ₇ -i	CH ₃
Cl	(2-) Cl	C ₄ H ₉	CH ₃
Cl	(2-) Cl	C ₄ H ₉ -i	CH ₃
Cl	(2-) Cl	C ₄ H ₉ -s	CH ₃
Cl	(2-) Cl	C ₄ H ₉ -t	CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl	CH=CHCH ₃	CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl		CH ₃
Cl	(2-) Cl	N(CH ₃) ₂	CH ₃
Cl	(2-) Cl		CH ₃
















R^3	(position-) $(R^4)_n$	R^5	R^6
Cl	(2-) Cl	Cl	CH ₃
Cl	(2-) Cl	Br	CH ₃
SO ₂ CH ₃	(2-) Cl	CF ₃	CH ₃
SO ₂ CH ₃	(2-) Cl	SCH ₃	CH ₃
SO ₂ CH ₃	(2-) Cl	SC ₂ H ₅	CH ₃
SO ₂ CH ₃	(2-) Cl	SC ₃ H ₇	CH ₃
SO ₂ CH ₃	(2-) Cl	SC ₃ H ₇ -i	CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl	SCH=C=CH ₂	CH ₃
SO ₂ CH ₃	(2-) Cl	SCH ₂ CN	CH ₃
SO ₂ CH ₃	(2-) Cl	SCH ₂ CH ₂ CN	CH ₃
SO ₂ CH ₃	(2-) Cl	OCH ₃	CH ₃
SO ₂ CH ₃	(2-) Cl	OC ₂ H ₅	CH ₃
SO ₂ CH ₃	(2-) Cl	OC ₃ H ₇	CH ₃
SO ₂ CH ₃	(2-) Cl	OC ₃ H ₇ -i	CH ₃
SO ₂ CH ₃	(2-) Cl	OC ₄ H ₉	CH ₃

R^3	(position-) (R^4) _n	R^5	R^6
SO ₂ CH ₃	(2-) Cl	OCH ₂ CF ₃	CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl	OC ₆ H ₅	CH ₃
SO ₂ CH ₃	(2-) Cl	H	CH ₃
SO ₂ CH ₃	(2-) Cl	CH ₃	CH ₃
SO ₂ CH ₃	(2-) Cl	C ₂ H ₅	CH ₃
SO ₂ CH ₃	(2-) Cl	C ₃ H ₇	CH ₃
SO ₂ CH ₃	(2-) Cl	C ₃ H ₇ -i	CH ₃
SO ₂ CH ₃	(2-) Cl	C ₄ H ₉	CH ₃
SO ₂ CH ₃	(2-) Cl	C ₄ H ₉ -i	CH ₃
SO ₂ CH ₃	(2-) Cl	C ₄ H ₉ -s	CH ₃
SO ₂ CH ₃	(2-) Cl	C ₄ H ₉ -t	CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl	CH=CHCH ₃	CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl	N(CH ₃) ₂	CH ₃
















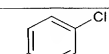

R^3	(position-) (R^4) _n	R^5	R^6
SO ₂ CH ₃	(2-) Cl		CH ₃
SO ₂ CH ₃	(2-) Cl	Cl	CH ₃
SO ₂ CH ₃	(2-) Cl	Br	CH ₃
Cl	(2-) SO ₂ CH ₃	CF ₃	CH ₃
Cl	(2-) SO ₂ CH ₃	SCH ₃	CH ₃
Cl	(2-) SO ₂ CH ₃	SC ₂ H ₅	CH ₃
Cl	(2-) SO ₂ CH ₃	SC ₃ H ₇	CH ₃
Cl	(2-) SO ₂ CH ₃	SC ₃ H ₇ -i	CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃	SCH=C=CH ₂	CH ₃
Cl	(2-) SO ₂ CH ₃	SCH ₂ CN	CH ₃
Cl	(2-) SO ₂ CH ₃	SCH ₂ CH ₂ CN	CH ₃
Cl	(2-) SO ₂ CH ₃	OCH ₃	CH ₃
Cl	(2-) SO ₂ CH ₃	OC ₂ H ₅	CH ₃

















R^3	(position-) (R^4) _n	R^5	R^6
Cl	(2-) SO ₂ CH ₃	OC ₃ H ₇	CH ₃
Cl	(2-) SO ₂ CH ₃	OC ₃ H ₇ -i	CH ₃
Cl	(2-) SO ₂ CH ₃	OC ₄ H ₉	CH ₃
Cl	(2-) SO ₂ CH ₃	OCH ₂ CF ₃	CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃	OC ₆ H ₅	CH ₃
Cl	(2-) SO ₂ CH ₃	H	CH ₃
Cl	(2-) SO ₂ CH ₃	CH ₃	CH ₃
Cl	(2-) SO ₂ CH ₃	C ₂ H ₅	CH ₃
Cl	(2-) SO ₂ CH ₃	C ₃ H ₇	CH ₃
Cl	(2-) SO ₂ CH ₃	C ₃ H ₇ -i	CH ₃
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉	CH ₃
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉ -i	CH ₃
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉ -s	CH ₃
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉ -t	CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃	CH=CHCH ₃	CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
















R^3	(position-) (R^4) _n	R^5	R^6
Cl	(2-) SO ₂ CH ₃	N(CH ₃) ₂	CH ₃
Cl	(2-) SO ₂ CH ₃		CH ₃
Cl	(2-) SO ₂ CH ₃	Cl	CH ₃
Cl	(2-) SO ₂ CH ₃	Br	CH ₃
Cl	(2-) Cl	CF ₃	
Cl	(2-) Cl	SCH ₃	
Cl	(2-) Cl	SC ₂ H ₅	
Cl	(2-) Cl	SC ₃ H ₇	
Cl	(2-) Cl	SC ₃ H ₇ -i	
Cl	(2-) Cl		
Cl	(2-) Cl		
Cl	(2-) Cl		
Cl	(2-) Cl		

















R^3	(position-) $(R^4)_n$	R^5	R^6
Cl	(2-) Cl		
Cl	(2-) Cl	$SCH=C=CH_2$	
Cl	(2-) Cl	SCH_2CN	
Cl	(2-) Cl	SCH_2CH_2CN	
Cl	(2-) Cl	OCH_3	
Cl	(2-) Cl	OC_2H_5	
Cl	(2-) Cl	OC_3H_7	
Cl	(2-) Cl	OC_3H_7-i	
Cl	(2-) Cl	OC_4H_9	
Cl	(2-) Cl	OCH_2CF_3	
Cl	(2-) Cl		
Cl	(2-) Cl	OC_6H_5	
Cl	(2-) Cl	H	




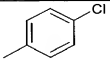

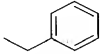











- 30 -


















R^3	(position-) $(R^4)_n$	R^5	R^6
Cl	(2-) Cl	CH ₃	
Cl	(2-) Cl	C ₂ H ₅	
Cl	(2-) Cl	C ₃ H ₇	
Cl	(2-) Cl	C ₃ H ₇ -i	
Cl	(2-) Cl	C ₄ H ₉	
Cl	(2-) Cl	C ₄ H ₉ -i	
Cl	(2-) Cl	C ₄ H ₉ -s	
Cl	(2-) Cl	C ₄ H ₉ -t	
Cl	(2-) Cl		
Cl	(2-) Cl		
Cl	(2-) Cl	CH=CHCH ₃	
Cl	(2-) Cl		
Cl	(2-) Cl		















R^3	(position-) (R^4) _n	R^5	R^6
Cl	(2-) Cl		
Cl	(2-) Cl	$N(CH_3)_2$	
Cl	(2-) Cl		
Cl	(2-) Cl	Cl	
Cl	(2-) Cl	Br	
SO_2CH_3	(2-) Cl	CF_3	
SO_2CH_3	(2-) Cl	SCH_3	
SO_2CH_3	(2-) Cl	SC_2H_5	
SO_2CH_3	(2-) Cl	SC_3H_7	
SO_2CH_3	(2-) Cl	SC_3H_7-i	
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl		








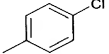

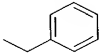






R^3	(position-) $(R^4)_n$	R^5	R^6
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl	$SCH=C=CH_2$	
SO_2CH_3	(2-) Cl	SCH_2CN	
SO_2CH_3	(2-) Cl	SCH_2CH_2CN	
SO_2CH_3	(2-) Cl	OCH_3	
SO_2CH_3	(2-) Cl	OC_2H_5	
SO_2CH_3	(2-) Cl	OC_3H_7	
SO_2CH_3	(2-) Cl	OC_3H_7-i	
SO_2CH_3	(2-) Cl	OC_4H_9	
SO_2CH_3	(2-) Cl	OCH_2CF_3	







R^3	(position-) $(R^4)_n$	R^5	R^6
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl	OC_6H_5	
SO_2CH_3	(2-) Cl	H	
SO_2CH_3	(2-) Cl	CH_3	
SO_2CH_3	(2-) Cl	C_2H_5	
SO_2CH_3	(2-) Cl	C_3H_7	
SO_2CH_3	(2-) Cl	C_3H_7-i	
SO_2CH_3	(2-) Cl	C_4H_9	
SO_2CH_3	(2-) Cl	C_4H_9-i	
SO_2CH_3	(2-) Cl	C_4H_9-s	
SO_2CH_3	(2-) Cl	C_4H_9-t	
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl		




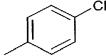
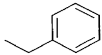

R^3	(position-) (R^4) _n	R^5	R^6
SO_2CH_3	(2-) Cl	$CH=CHCH_3$	
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl	$N(CH_3)_2$	
SO_2CH_3	(2-) Cl		
SO_2CH_3	(2-) Cl	Cl	
SO_2CH_3	(2-) Cl	Br	
Cl	(2-) SO_2CH_3	CF_3	
Cl	(2-) SO_2CH_3	SCH_3	
Cl	(2-) SO_2CH_3	SC_2H_5	
Cl	(2-) SO_2CH_3	SC_3H_7	
Cl	(2-) SO_2CH_3	SC_3H_7-i	







R^3	(position-) (R^4) _n	R^5	R^6
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃	SCH=C=CH ₂	
Cl	(2-) SO ₂ CH ₃	SCH ₂ CN	
Cl	(2-) SO ₂ CH ₃	SCH ₂ CH ₂ CN	
Cl	(2-) SO ₂ CH ₃	OCH ₃	
Cl	(2-) SO ₂ CH ₃	OC ₂ H ₅	
Cl	(2-) SO ₂ CH ₃	OC ₃ H ₇	
Cl	(2-) SO ₂ CH ₃	OC ₃ H _{7-i}	




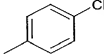
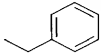

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) SO ₂ CH ₃	OC ₄ H ₉	
Cl	(2-) SO ₂ CH ₃	OCH ₂ CF ₃	
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃	OC ₆ H ₅	
Cl	(2-) SO ₂ CH ₃	H	
Cl	(2-) SO ₂ CH ₃	CH ₃	
Cl	(2-) SO ₂ CH ₃	C ₂ H ₅	
Cl	(2-) SO ₂ CH ₃	C ₃ H ₇	
Cl	(2-) SO ₂ CH ₃	C ₃ H ₇ -i	
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉	
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉ -i	
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉ -s	
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉ -t	







R^3	(position-) (R^4) _n	R^5	R^6
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃	CH=CHCH ₃	
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃	N(CH ₃) ₂	
Cl	(2-) SO ₂ CH ₃		
Cl	(2-) SO ₂ CH ₃	Cl	
Cl	(2-) SO ₂ CH ₃	Br	
Cl	(2-) Cl	CF ₃	N(CH ₃) ₂
Cl	(2-) Cl	SCH ₃	N(CH ₃) ₂
Cl	(2-) Cl	SC ₂ H ₅	N(CH ₃) ₂
Cl	(2-) Cl	SC ₃ H ₇	N(CH ₃) ₂
Cl	(2-) Cl	SC ₃ H _{7-i}	N(CH ₃) ₂




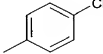


R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl	SCH=C=CH ₂	N(CH ₃) ₂
Cl	(2-) Cl	SCH ₂ CN	N(CH ₃) ₂
Cl	(2-) Cl	SCH ₂ CH ₂ CN	N(CH ₃) ₂
Cl	(2-) Cl	OCH ₃	N(CH ₃) ₂
Cl	(2-) Cl	OC ₂ H ₅	N(CH ₃) ₂
Cl	(2-) Cl	OC ₃ H ₇	N(CH ₃) ₂
Cl	(2-) Cl	OC ₃ H ₇ -i	N(CH ₃) ₂
Cl	(2-) Cl	OC ₄ H ₉	N(CH ₃) ₂
Cl	(2-) Cl	OCH ₂ CF ₃	N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl	OC ₆ H ₅	N(CH ₃) ₂
Cl	(2-) Cl	H	N(CH ₃) ₂
Cl	(2-) Cl	CH ₃	N(CH ₃) ₂

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) Cl	C ₂ H ₅	N(CH ₃) ₂
Cl	(2-) Cl	C ₃ H ₇	N(CH ₃) ₂
Cl	(2-) Cl	C ₃ H ₇ -i	N(CH ₃) ₂
Cl	(2-) Cl	C ₄ H ₉	N(CH ₃) ₂
Cl	(2-) Cl	C ₄ H ₉ -i	N(CH ₃) ₂
Cl	(2-) Cl	C ₄ H ₉ -s	N(CH ₃) ₂
Cl	(2-) Cl	C ₄ H ₉ -t	N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl	CH=CHCH ₃	N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl	N(CH ₃) ₂	N(CH ₃) ₂
Cl	(2-) Cl		N(CH ₃) ₂
Cl	(2-) Cl	Cl	N(CH ₃) ₂
Cl	(2-) Cl	Br	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	CF ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	SCH ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	SC ₂ H ₅	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	SC ₃ H ₇	N(CH ₃) ₂

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
SO ₂ CH ₃	(2-) Cl	SC ₃ H ₇ -i	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	SCH=C=CH ₂	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	SCH ₂ CN	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	SCH ₂ CH ₂ CN	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	OCH ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	OC ₂ H ₅	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	OC ₃ H ₇	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	OC ₃ H ₇ -i	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	OC ₄ H ₉	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	OCH ₂ CF ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	OC ₆ H ₅	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	H	N(CH ₃) ₂

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
SO ₂ CH ₃	(2-) Cl	CH ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	C ₂ H ₅	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	C ₃ H ₇	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	C ₃ H ₇ -i	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	C ₄ H ₉	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	C ₄ H ₉ -i	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	C ₄ H ₉ -s	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	C ₄ H ₉ -t	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	CH=CHCH ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	N(CH ₃) ₂	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl		N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	Cl	N(CH ₃) ₂
SO ₂ CH ₃	(2-) Cl	Br	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	CF ₃	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	SCH ₃	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	SC ₂ H ₅	N(CH ₃) ₂

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) SO ₂ CH ₃	SC ₃ H ₇	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	SC ₃ H _{7-i}	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	SCH=C=CH ₂	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	SCH ₂ CN	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	SCH ₂ CH ₂ CN	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	OCH ₃	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	OC ₂ H ₅	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	OC ₃ H ₇	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	OC ₃ H _{7-i}	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	OC ₄ H ₉	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	OCH ₂ CF ₃	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	OC ₆ H ₅	N(CH ₃) ₂






R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) SO ₂ CH ₃	H	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	CH ₃	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	C ₂ H ₅	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	C ₃ H ₇	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	C ₃ H ₇ -i	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉ -i	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉ -s	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	C ₄ H ₉ -t	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	CH=CHCH ₃	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	N(CH ₃) ₂	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃		N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	Cl	N(CH ₃) ₂
Cl	(2-) SO ₂ CH ₃	Br	N(CH ₃) ₂
Cl	(2-) Cl	CH ₃	OCH ₃
Cl	(2-) Cl	C ₂ H ₅	OCH ₃





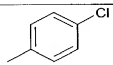
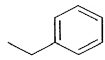

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) Cl	C ₃ H ₇	OCH ₃
Cl	(2-) Cl	SCH ₃	OCH ₃
Cl	(2-) Cl	SC ₂ H ₅	OCH ₃
Cl	(2-) Cl	OCH ₃	OCH ₃
Cl	(2-) Cl	OC ₂ H ₅	OCH ₃
Cl	(2-) Cl	CH ₃	OC ₂ H ₅
Cl	(2-) Cl	C ₂ H ₅	OC ₂ H ₅
Cl	(2-) Cl	C ₃ H ₇	OC ₂ H ₅
Cl	(2-) Cl	SCH ₃	OC ₂ H ₅
Cl	(2-) Cl	SC ₂ H ₅	OC ₂ H ₅
Cl	(2-) Cl	OCH ₃	OC ₂ H ₅
Cl	(2-) Cl	OC ₂ H ₅	OC ₂ H ₅
Cl	(2-) SO ₂ CH ₃	CH ₃	OCH ₃
Cl	(2-) SO ₂ CH ₃	C ₂ H ₅	OCH ₃
Cl	(2-) SO ₂ CH ₃	C ₃ H ₇	OCH ₃
Cl	(2-) SO ₂ CH ₃	SCH ₃	OCH ₃
Cl	(2-) SO ₂ CH ₃	SC ₂ H ₅	OCH ₃
Cl	(2-) SO ₂ CH ₃	OCH ₃	OCH ₃
Cl	(2-) SO ₂ CH ₃	OC ₂ H ₅	OCH ₃
Cl	(2-) SO ₂ CH ₃	CH ₃	OC ₂ H ₅
Cl	(2-) SO ₂ CH ₃	C ₂ H ₅	OC ₂ H ₅
Cl	(2-) SO ₂ CH ₃	C ₃ H ₇	OC ₂ H ₅
Cl	(2-) SO ₂ CH ₃	SCH ₃	OC ₂ H ₅
Cl	(2-) SO ₂ CH ₃	SC ₂ H ₅	OC ₂ H ₅
Cl	(2-) SO ₂ CH ₃	OCH ₃	OC ₂ H ₅
Cl	(2-) SO ₂ CH ₃	OC ₂ H ₅	OC ₂ H ₅
SO ₂ CH ₃	(2-) Cl	Cl	OCH ₃
SO ₂ CH ₃	(2-) Cl	Br	OCH ₃
SO ₂ CH ₃	(2-) Cl	CH ₃	OCH ₃






R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
SO ₂ CH ₃	(2-) Cl	C ₂ H ₅	OCH ₃
SO ₂ CH ₃	(2-) Cl	C ₃ H ₇	OCH ₃
SO ₂ CH ₃	(2-) Cl	SCH ₃	OCH ₃
SO ₂ CH ₃	(2-) Cl	SC ₂ H ₅	OCH ₃
SO ₂ CH ₃	(2-) Cl	OCH ₃	OC ₂ H ₅
SO ₂ CH ₃	(2-) Cl	OC ₂ H ₅	OC ₂ H ₅
SO ₂ CH ₃	(2-) Cl	CH ₃	OC ₂ H ₅
SO ₂ CH ₃	(2-) Cl	C ₂ H ₅	OC ₂ H ₅
SO ₂ CH ₃	(2-) Cl	C ₃ H ₇	OC ₂ H ₅
SO ₂ CH ₃	(2-) Cl	SCH ₃	OC ₂ H ₅
SO ₂ CH ₃	(2-) Cl	SC ₂ H ₅	OC ₂ H ₅
SO ₂ CH ₃	(2-) Cl	OCH ₃	OC ₂ H ₅
CF ₃	(2-) Cl	Br	CH ₃
CF ₃	(2-) Cl	SCH ₃	CH ₃
CF ₃	(2-) Cl	OCH ₃	CH ₃
CF ₃	(2-) Cl	N(CH ₃) ₂	CH ₃
CF ₃	(2-) Cl	CF ₃	CH ₃
CF ₃	(2-) NO ₂	Br	CH ₃
CF ₃	(2-) NO ₂	SCH ₃	CH ₃
CF ₃	(2-) NO ₂	OCH ₃	CH ₃
CF ₃	(2-) NO ₂	N(CH ₃) ₂	CH ₃
CF ₃	(2-) NO ₂	CF ₃	CH ₃
CF ₃	(2-) CH ₃	Br	CH ₃
CF ₃	(2-) CH ₃	SCH ₃	CH ₃
CF ₃	(2-) CH ₃	OCH ₃	CH ₃
CF ₃	(2-) CH ₃	N(CH ₃) ₂	CH ₃
CF ₃	(2-) CH ₃	CF ₃	CH ₃
CF ₃	(2-) OCH ₃	Br	CH ₃
CF ₃	(2-) OCH ₃	SCH ₃	CH ₃





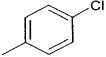
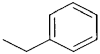
R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
CF ₃	(2-) OCH ₃	OCH ₃	CH ₃
CF ₃	(2-) OCH ₃	N(CH ₃) ₂	CH ₃
CF ₃	(2-) OCH ₃	CF ₃	CH ₃
SO ₂ CH ₃	(2-) NO ₂	Br	CH ₃
SO ₂ CH ₃	(2-) NO ₂	SCH ₃	CH ₃
SO ₂ CH ₃	(2-) NO ₂	OCH ₃	CH ₃
SO ₂ CH ₃	(2-) NO ₂	N(CH ₃) ₂	CH ₃
SO ₂ CH ₃	(2-) NO ₂	CF ₃	CH ₃
SO ₂ CH ₃	(2-) CF ₃	Br	CH ₃
SO ₂ CH ₃	(2-) CF ₃	SCH ₃	CH ₃
SO ₂ CH ₃	(2-) CF ₃	OCH ₃	CH ₃
SO ₂ CH ₃	(2-) CF ₃	N(CH ₃) ₂	CH ₃
SO ₂ CH ₃	(2-) CF ₃	CF ₃	CH ₃
SO ₂ CH ₃	(2-) SO ₂ CH ₃	Br	CH ₃
SO ₂ CH ₃	(2-) SO ₂ CH ₃	SCH ₃	CH ₃
SO ₂ CH ₃	(2-) SO ₂ CH ₃	OCH ₃	CH ₃
SO ₂ CH ₃	(2-) SO ₂ CH ₃	N(CH ₃) ₂	CH ₃
SO ₂ CH ₃	(2-) SO ₂ CH ₃	CF ₃	CH ₃
CN	(2-) Cl	Br	CH ₃
CN	(2-) Cl	SCH ₃	CH ₃
CN	(2-) Cl	OCH ₃	CH ₃
CN	(2-) Cl	N(CH ₃) ₂	CH ₃
CN	(2-) Cl	CF ₃	CH ₃
CN	(2-) NO ₂	Br	CH ₃
CN	(2-) NO ₂	SCH ₃	CH ₃
CN	(2-) NO ₂	OCH ₃	CH ₃
CN	(2-) NO ₂	N(CH ₃) ₂	CH ₃
CN	(2-) NO ₂	CF ₃	CH ₃
CN	(2-) CF ₃	Br	CH ₃

















R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
CN	(2-) CF ₃	SCH ₃	CH ₃
CN	(2-) CF ₃	OCH ₃	CH ₃
CN	(2-) CF ₃	N(CH ₃) ₂	CH ₃
CN	(2-) CF ₃	CF ₃	CH ₃
CN	(2-) SO ₂ CH ₃	Br	CH ₃
CN	(2-) SO ₂ CH ₃	SCH ₃	CH ₃
CN	(2-) SO ₂ CH ₃	OCH ₃	CH ₃
CN	(2-) SO ₂ CH ₃	N(CH ₃) ₂	CH ₃
CN	(2-) SO ₂ CH ₃	CF ₃	CH ₃
Br	(2-) NO ₂	Br	CH ₃
Br	(2-) NO ₂	SCH ₃	CH ₃
Br	(2-) NO ₂	OCH ₃	CH ₃
Br	(2-) NO ₂	N(CH ₃) ₂	CH ₃
Br	(2-) NO ₂	CF ₃	CH ₃
Br	(2-) CF ₃	Br	CH ₃
Br	(2-) CF ₃	SCH ₃	CH ₃
Br	(2-) CF ₃	OCH ₃	CH ₃
Br	(2-) CF ₃	N(CH ₃) ₂	CH ₃
Br	(2-) CF ₃	CF ₃	CH ₃
Br	(2-) SO ₂ CH ₃	Br	CH ₃
Br	(2-) SO ₂ CH ₃	SCH ₃	CH ₃
Br	(2-) SO ₂ CH ₃	OCH ₃	CH ₃
Br	(2-) SO ₂ CH ₃	N(CH ₃) ₂	CH ₃
Br	(2-) SO ₂ CH ₃	CF ₃	CH ₃
Br	(2-) CH ₃	Br	CH ₃
Br	(2-) CH ₃	SCH ₃	CH ₃
Br	(2-) CH ₃	OCH ₃	CH ₃
Br	(2-) CH ₃	N(CH ₃) ₂	CH ₃
Br	(2-) CH ₃	CF ₃	CH ₃















R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) OCH ₃	CF ₃	CH ₃
Cl	(2-) OCH ₃	SCH ₃	CH ₃
Cl	(2-) OCH ₃	SC ₂ H ₅	CH ₃
Cl	(2-) OCH ₃	SC ₃ H ₇	CH ₃
Cl	(2-) OCH ₃	SC ₃ H ₇ -i	CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃	SCH=C=CH ₂	CH ₃
Cl	(2-) OCH ₃	SCH ₂ CN	CH ₃
Cl	(2-) OCH ₃	SCH ₂ CH ₂ CN	CH ₃
Cl	(2-) OCH ₃	OCH ₃	CH ₃
Cl	(2-) OCH ₃	OC ₂ H ₅	CH ₃
Cl	(2-) OCH ₃	OC ₃ H ₇	CH ₃
Cl	(2-) OCH ₃	OC ₃ H ₇ -i	CH ₃
Cl	(2-) OCH ₃	OC ₄ H ₉	CH ₃
Cl	(2-) OCH ₃	OCH ₂ CF ₃	CH ₃















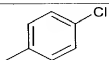

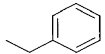

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃	OC ₆ H ₅	CH ₃
Cl	(2-) OCH ₃	H	CH ₃
Cl	(2-) OCH ₃	CH ₃	CH ₃
Cl	(2-) OCH ₃	C ₂ H ₅	CH ₃
Cl	(2-) OCH ₃	C ₃ H ₇	CH ₃
Cl	(2-) OCH ₃	C ₃ H ₇ -i	CH ₃
Cl	(2-) OCH ₃	C ₄ H ₉	CH ₃
Cl	(2-) OCH ₃	C ₄ H ₉ -i	CH ₃
Cl	(2-) OCH ₃	C ₄ H ₉ -s	CH ₃
Cl	(2-) OCH ₃	C ₄ H ₉ -t	CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃	CH=CHCH ₃	CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃		CH ₃
Cl	(2-) OCH ₃	N(CH ₃) ₂	CH ₃
Cl	(2-) OCH ₃		CH ₃

















R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) OCH ₃	Cl	CH ₃
Cl	(2-) OCH ₃	Br	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	CF ₃	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	SCH ₃	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	SC ₂ H ₅	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	SC ₃ H ₇	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	SC ₃ H ₇ -i	CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃	SCH=C=CH ₂	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	SCH ₂ CN	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	SCH ₂ CH ₂ CN	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	OCH ₃	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	OC ₂ H ₅	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	OC ₃ H ₇	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	OC ₃ H ₇ -i	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	OC ₄ H ₉	CH ₃
















R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
SO ₂ CH ₃	(2-) OCH ₃	OCH ₂ CF ₃	CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃	OC ₆ H ₅	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	H	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	CH ₃	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	C ₂ H ₅	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	C ₃ H ₇	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	C ₃ H ₇ -i	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉ -i	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉ -s	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉ -t	CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃	CH=CHCH ₃	CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃	N(CH ₃) ₂	CH ₃
















R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
SO ₂ CH ₃	(2-) OCH ₃		CH ₃
SO ₂ CH ₃	(2-) OCH ₃	Cl	CH ₃
SO ₂ CH ₃	(2-) OCH ₃	Br	CH ₃
Cl	(2-) OCH ₃	CF ₃	
Cl	(2-) OCH ₃	SCH ₃	
Cl	(2-) OCH ₃	SC ₂ H ₅	
Cl	(2-) OCH ₃	SC ₃ H ₇	
Cl	(2-) OCH ₃	SC ₃ H ₇ -i	
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃		



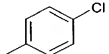

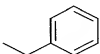








R^3	(position-) (R^4) _n	R^5	R^6
Cl	(2-) OCH ₃	SCH=C=CH ₂	
Cl	(2-) OCH ₃	SCH ₂ CN	
Cl	(2-) OCH ₃	SCH ₂ CH ₂ CN	
Cl	(2-) OCH ₃	OCH ₃	
Cl	(2-) OCH ₃	OC ₂ H ₅	
Cl	(2-) OCH ₃	OC ₃ H ₇	
Cl	(2-) OCH ₃	OC ₃ H ₇ -i	
Cl	(2-) OCH ₃	OC ₄ H ₉	
Cl	(2-) OCH ₃	OCH ₂ CF ₃	
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃	OC ₆ H ₅	
Cl	(2-) OCH ₃	H	
Cl	(2-) OCH ₃	CH ₃	





R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) OCH ₃	C ₂ H ₅	
Cl	(2-) OCH ₃	C ₃ H ₇	
Cl	(2-) OCH ₃	C ₃ H ₇ -i	
Cl	(2-) OCH ₃	C ₄ H ₉	
Cl	(2-) OCH ₃	C ₄ H ₉ -i	
Cl	(2-) OCH ₃	C ₄ H ₉ -s	
Cl	(2-) OCH ₃	C ₄ H ₉ -t	
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃	CH=CHCH ₃	
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃		




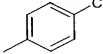
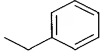


R^3	(position-) (R^4) _n	R^5	R^6
Cl	(2-) OCH ₃	N(CH ₃) ₂	
Cl	(2-) OCH ₃		
Cl	(2-) OCH ₃	Cl	
Cl	(2-) OCH ₃	Br	
SO ₂ CH ₃	(2-) OCH ₃	CF ₃	
SO ₂ CH ₃	(2-) OCH ₃	SCH ₃	
SO ₂ CH ₃	(2-) OCH ₃	SC ₂ H ₅	
SO ₂ CH ₃	(2-) OCH ₃	SC ₃ H ₇	
SO ₂ CH ₃	(2-) OCH ₃	SC ₃ H ₇ -i	
SO ₂ CH ₃	(2-) OCH ₃		
SO ₂ CH ₃	(2-) OCH ₃		
SO ₂ CH ₃	(2-) OCH ₃		






R^3	(position-) $(R^4)_n$	R^5	R^6
SO_2CH_3	(2-) OCH_3		
SO_2CH_3	(2-) OCH_3		
SO_2CH_3	(2-) OCH_3	$SCH=C=CH_2$	
SO_2CH_3	(2-) OCH_3	SCH_2CN	
SO_2CH_3	(2-) OCH_3	SCH_2CH_2CN	
SO_2CH_3	(2-) OCH_3	OCH_3	
SO_2CH_3	(2-) OCH_3	OC_2H_5	
SO_2CH_3	(2-) OCH_3	OC_3H_7	
SO_2CH_3	(2-) OCH_3	OC_3H_7-i	
SO_2CH_3	(2-) OCH_3	OC_4H_9	
SO_2CH_3	(2-) OCH_3	OCH_2CF_3	
SO_2CH_3	(2-) OCH_3		




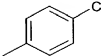
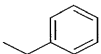

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
SO ₂ CH ₃	(2-) OCH ₃	OC ₆ H ₅	
SO ₂ CH ₃	(2-) OCH ₃	H	
SO ₂ CH ₃	(2-) OCH ₃	CH ₃	
SO ₂ CH ₃	(2-) OCH ₃	C ₂ H ₅	
SO ₂ CH ₃	(2-) OCH ₃	C ₃ H ₇	
SO ₂ CH ₃	(2-) OCH ₃	C ₃ H ₇ -i	
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉	
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉ -i	
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉ -s	
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉ -t	
SO ₂ CH ₃	(2-) OCH ₃		
SO ₂ CH ₃	(2-) OCH ₃		
SO ₂ CH ₃	(2-) OCH ₃	CH=CHCH ₃	

R^3	(position-) $(R^4)_n$	R^5	R^6
SO_2CH_3	(2-) OCH_3		
SO_2CH_3	(2-) OCH_3		
SO_2CH_3	(2-) OCH_3		
SO_2CH_3	(2-) OCH_3	$\text{N}(\text{CH}_3)_2$	
SO_2CH_3	(2-) OCH_3		
SO_2CH_3	(2-) OCH_3	Cl	
SO_2CH_3	(2-) OCH_3	Br	
Cl	(2-) OCH_3	CF_3	$\text{N}(\text{CH}_3)_2$
Cl	(2-) OCH_3	SCH_3	$\text{N}(\text{CH}_3)_2$
Cl	(2-) OCH_3	SC_2H_5	$\text{N}(\text{CH}_3)_2$
Cl	(2-) OCH_3	SC_3H_7	$\text{N}(\text{CH}_3)_2$
Cl	(2-) OCH_3	$\text{SC}_3\text{H}_7\text{-i}$	$\text{N}(\text{CH}_3)_2$
Cl	(2-) OCH_3		$\text{N}(\text{CH}_3)_2$
Cl	(2-) OCH_3		$\text{N}(\text{CH}_3)_2$

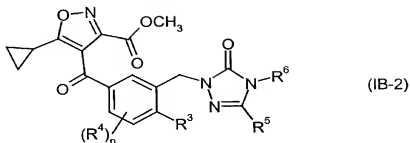
R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃	SCH=C=CH ₂	N(CH ₃) ₂
Cl	(2-) OCH ₃	SCH ₂ CN	N(CH ₃) ₂
Cl	(2-) OCH ₃	SCH ₂ CH ₂ CN	N(CH ₃) ₂
Cl	(2-) OCH ₃	OCH ₃	N(CH ₃) ₂
Cl	(2-) OCH ₃	OC ₂ H ₅	N(CH ₃) ₂
Cl	(2-) OCH ₃	OC ₃ H ₇	N(CH ₃) ₂
Cl	(2-) OCH ₃	OC ₃ H _{7-i}	N(CH ₃) ₂
Cl	(2-) OCH ₃	OC ₄ H ₉	N(CH ₃) ₂
Cl	(2-) OCH ₃	OCH ₂ CF ₃	N(CH ₃) ₂
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃	OC ₆ H ₅	N(CH ₃) ₂
Cl	(2-) OCH ₃	H	N(CH ₃) ₂
Cl	(2-) OCH ₃	CH ₃	N(CH ₃) ₂
Cl	(2-) OCH ₃	C ₂ H ₅	N(CH ₃) ₂
Cl	(2-) OCH ₃	C ₃ H ₇	N(CH ₃) ₂
Cl	(2-) OCH ₃	C ₃ H _{7-i}	N(CH ₃) ₂
Cl	(2-) OCH ₃	C ₄ H ₉	N(CH ₃) ₂
Cl	(2-) OCH ₃	C ₄ H _{9-i}	N(CH ₃) ₂
Cl	(2-) OCH ₃	C ₄ H _{9-s}	N(CH ₃) ₂

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) OCH ₃	C ₄ H ₉ -t	N(CH ₃) ₂
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃	CH=CHCH ₃	N(CH ₃) ₂
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃	N(CH ₃) ₂	N(CH ₃) ₂
Cl	(2-) OCH ₃		N(CH ₃) ₂
Cl	(2-) OCH ₃	Cl	N(CH ₃) ₂
Cl	(2-) OCH ₃	Br	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	CF ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	SCH ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	SC ₂ H ₅	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	SC ₃ H ₇	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	SC ₃ H ₇ -i	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂

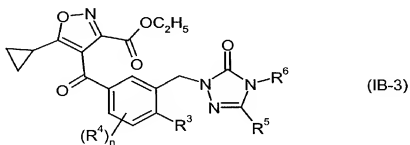
R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	SCH=C=CH ₂	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	SCH ₂ CN	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	SCH ₂ CH ₂ CN	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	OCH ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	OC ₂ H ₅	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	OC ₃ H ₇	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	OC ₃ H ₇ -i	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	OC ₄ H ₉	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	OCH ₂ CF ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	OC ₆ H ₅	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	H	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	CH ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	C ₂ H ₅	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	C ₃ H ₇	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	C ₃ H ₇ -i	N(CH ₃) ₂

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉ -i	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉ -s	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	C ₄ H ₉ -t	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	CH=CHCH ₃	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	N(CH ₃) ₂	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃		N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	Cl	N(CH ₃) ₂
SO ₂ CH ₃	(2-) OCH ₃	Br	N(CH ₃) ₂
Cl	(2-) OCH ₃	CH ₃	OCH ₃
Cl	(2-) OCH ₃	C ₂ H ₅	OCH ₃
Cl	(2-) OCH ₃	C ₃ H ₇	OCH ₃
Cl	(2-) OCH ₃	SCH ₃	OCH ₃
Cl	(2-) OCH ₃	SC ₂ H ₅	OCH ₃
Cl	(2-) OCH ₃	OCH ₃	OCH ₃
Cl	(2-) OCH ₃	OC ₂ H ₅	OCH ₃

R ³	(position-) (R ⁴) _n	R ⁵	R ⁶
Cl	(2-) OCH ₃	CH ₃	OC ₂ H ₅
Cl	(2-) OCH ₃	C ₂ H ₅	OC ₂ H ₅
Cl	(2-) OCH ₃	C ₃ H ₇	OC ₂ H ₅
Cl	(2-) OCH ₃	SCH ₃	OC ₂ H ₅
Cl	(2-) OCH ₃	SC ₂ H ₅	OC ₂ H ₅
Cl	(2-) OCH ₃	OCH ₃	OC ₂ H ₅
Cl	(2-) OCH ₃	OC ₂ H ₅	OC ₂ H ₅
SO ₂ CH ₃	(2-) OCH ₃	Cl	OCH ₃
SO ₂ CH ₃	(2-) OCH ₃	Br	OCH ₃
SO ₂ CH ₃	(2-) OCH ₃	CH ₃	OCH ₃
SO ₂ CH ₃	(2-) OCH ₃	C ₂ H ₅	OCH ₃
SO ₂ CH ₃	(2-) OCH ₃	C ₃ H ₇	OCH ₃
SO ₂ CH ₃	(2-) OCH ₃	SCH ₃	OCH ₃
SO ₂ CH ₃	(2-) OCH ₃	SC ₂ H ₅	OCH ₃
SO ₂ CH ₃	(2-) OCH ₃	OCH ₃	OC ₂ H ₅
SO ₂ CH ₃	(2-) OCH ₃	OC ₂ H ₅	OC ₂ H ₅
SO ₂ CH ₃	(2-) OCH ₃	CH ₃	OC ₂ H ₅
SO ₂ CH ₃	(2-) OCH ₃	C ₂ H ₅	OC ₂ H ₅
SO ₂ CH ₃	(2-) OCH ₃	C ₃ H ₇	OC ₂ H ₅
SO ₂ CH ₃	(2-) OCH ₃	SCH ₃	OC ₂ H ₅
SO ₂ CH ₃	(2-) OCH ₃	SC ₂ H ₅	OC ₂ H ₅
SO ₂ CH ₃	(2-) OCH ₃	OCH ₃	OC ₂ H ₅

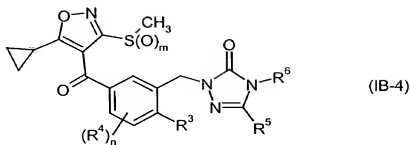
Group 10

5 Here, R^3 , $(R^4)_n$, R^5 and R^6 have, for example, the meanings given for Group 9.

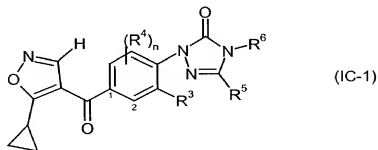
Group 11

10

Here, R^3 , $(R^4)_n$, R^5 and R^6 have, for example, the meanings given for Group 9.

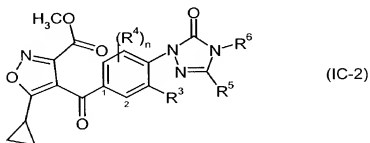
Group 12

- 5 Here, R^3 , $(R^4)_n$, R^5 and R^6 have, for example, the meanings given for Group 9, and m represents the number 0, 1 or 2.

Group 13

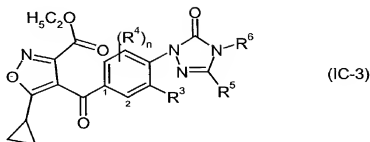
10

Here, R^3 , $(R^4)_n$, R^5 and R^6 have, for example, the meanings given for Group 9.

Group 14

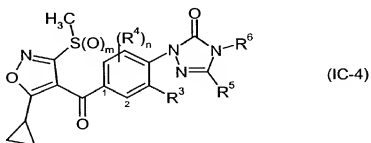
15

Here, R^3 , $(R^4)_n$, R^5 and R^6 have, for example, the meanings given for Group 9.

Group 15

Here, R^3 , $(R^4)_n$, R^5 and R^6 have, for example, the meanings given for Group 9.

5

Group 16

Here, R^3 , $(R^4)_n$, R^5 and R^6 have, for example, the meanings given for Group 9, and m represents the number 0, 1 or 2.

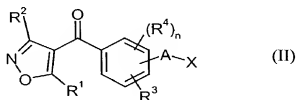
10

The novel substituted benzoylisoaxazoles of the general formula (I) have strong and selective herbicidal activity.

15

The novel substituted benzoylisoaxazoles of the general formula (I) are obtained when

(a) benzoylisoaxazoles of the general formula (II)



- 67 -

in which

n , A , R^1 , R^2 , R^3 and R^4 are each as defined above and

5

X represents halogen

are reacted with heterocycles of the general formula (III)

10

$H-Z$ (III)

in which

Z is as defined above,

15

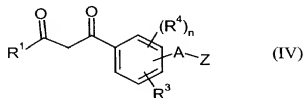
if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of one or more diluents,

or when

20

- if R^2 is hydrogen-

(b) benzoyl ketones of the general formula (IV)



25

in which

n , A , R^1 , R^3 , R^4 and Z are each as defined above

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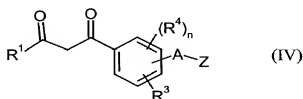
are reacted with a trialkyl orthoformate or an N,N-dimethylformamide dialkyl acetal and subsequently with hydroxylamine or an acid adduct thereof,

if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of one or more diluents,

or when

- if R^2 represents optionally substituted alkoxy carbonyl -

(c) benzoyl ketones of the general formula (IV)



in which

n , A , R^1 , R^3 , R^4 and Z are each as defined above

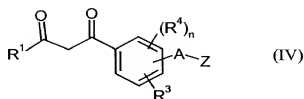
are reacted with an alkyl cyanoformate and then with hydroxylamine or an acid adduct thereof, or with an alkyl chloro-hydroximino-acetate, if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of one or more diluents,

or when

- if R^2 represents alkylthio -

(d) benzoyl ketones of the general formula (IV)

- 69 -



in which

n , A , R^1 , R^3 , R^4 and Z are each as defined above

are reacted with carbon disulphide and with an alkylating agent and then with hydroxylamine or an acid adduct thereof,

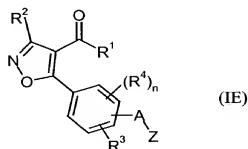
if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of one or more diluents,

and electrophilic or nucleophilic substitutions and/or oxidations or reductions within the scope of the definition of the substituents are, if appropriate, subsequently carried out in a customary manner on the compounds of the formula (I) obtained according to processes (a) to (d).

The compounds of the formula (I) can be converted by customary methods into other compounds of the formula (I) according to the above definition, for example by nucleophilic substitution (for example R^5 : $Cl \rightarrow OC_2H_5$, SCH_3) or by oxidation (for example R^5 : $CH_2SCH_3 \rightarrow CH_2S(O)CH_3$).

In the preparation of compounds of the general formula (I), it is also possible that compounds of the general formula (IE)

- 70 -



in which

n, A, R¹, R², R³, R⁴ and Z are each as defined above

5

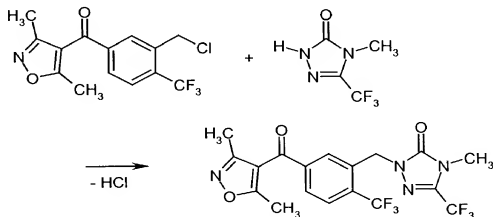
are formed in certain amounts.

The compounds of the general formula (IE) also form, as novel substances, part of the subject-matter of the present application.

10

Using, for example, (3-chloromethyl-4-trifluoromethyl-phenyl)-(3,5-dimethyl-isoxazol-4-yl)-methanone and 4-methyl-5-trifluoromethyl-2,4-dihydro-3H-1,2,4-triazol-3-one as starting materials, the course of the reaction in the process (a) according to the invention can be illustrated by the following formula scheme:

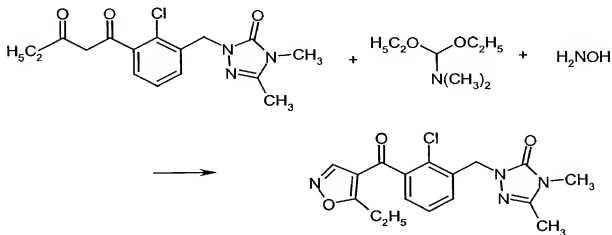
15



Using, for example, 1-[2-chloro-3-(3,4-dimethyl-5-oxo-4,5-dihydro-[1,2,4-triazol-1-yl-methyl]-phenyl]-pentane-1,3-dione, N,N-dimethyl-formamide diethyl acetal and

- 71 -

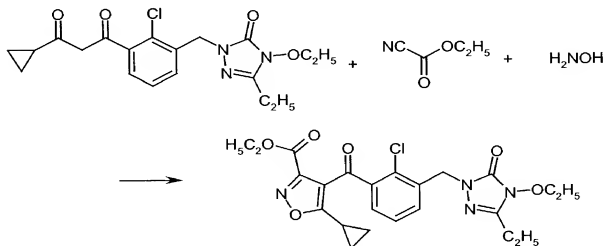
hydroxylamine as starting materials, the course of the reaction in the process (b) according to the invention can be illustrated by the following formula scheme:



5

Using, for example, 1-[2-chloro-3-(4-ethoxy-3-ethyl-5-oxo-4,5-dihydro-1,2,4-triazol-1-yl-methyl)-phenyl]-3-cyclopropyl-propane-1,3-dione, ethyl cyanofosphate and hydroxylamine as starting materials, the course of the reaction in the process (c) according to the invention can be illustrated by the following formula scheme:

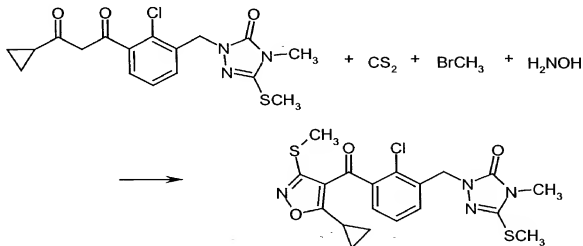
10



15

Using, for example, 1-[2-chloro-3-(4-methyl-3-methylthio-5-oxo-4,5-dihydro-1,2,4-triazol-1-yl-methyl)-phenyl]-3-cyclopropyl-propane-1,3-dione, carbon disulphide, methyl bromide and hydroxylamine as starting materials, the course of the reaction in

the process (d) according to the invention can be illustrated by the following formula scheme:

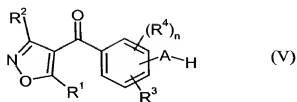


5 The formula (II) provides a general definition of the benzoylisoxazoles to be used as starting materials in the process (a) according to the invention for preparing compounds of the general formula (I). In the general formula (II), n , A , R^1 , R^2 , R^3 and R^4 each preferably have those meanings which have already been mentioned above, in connection with the description of the compounds of the general formula

10 (I) according to the invention, as being preferred, particularly preferred, very particularly preferred or most preferred for n , A , R^1 , R^2 , R^3 and R^4 ; X preferably represents fluorine, chlorine, bromine or iodine, in particular chlorine or bromine.

15 Except for ethyl 4-(2-bromo-methyl-benzoyl)-5-cyclopropyl-isoxazole-3-carboxylate (cf. WO-A-95/31446), the starting materials of the general formula (II) have hitherto not been disclosed in the literature; except for ethyl 4-(2-bromomethyl-benzoyl)-5-cyclopropyl-isoxazole-3-carboxylate, they also form, as novel substances, part of the subject-matter of the present application.

20 The novel benzoylisoxazoles of the general formula (II) are obtained when benzoylisoxazoles of the general formula (V)



in which

n , A , R^1 , R^2 , R^3 and R^4 are each as defined above

5

are reacted with a side-chain halogenating agent, such as, for example, N-bromo-succinimide or N-chloro-succinimide, under UV light or in the presence of a reaction auxiliary, such as, for example, 2,2'-azo-bis-isobutyronitrile, in the presence of a diluent, such as, for example, carbon tetrachloride, at temperatures between 0°C and 100°C (cf. WO-A-95/31446; Preparation Examples).

10

The intermediates of the general formula (V) are known and/or can be prepared by processes known per se (cf. WO-A-95/31446; Preparation Examples).

15

The formula (III) provides a general definition of the heterocycles further to be used as starting materials in the process (a) according to the invention for preparing compounds of the general formula (I). In the general formula (III), Z preferably has that meaning which has already been mentioned above, in connection with the description of the compounds of the general formula (I) according to the invention,

20

as being preferred for Z .

The starting materials of the general formula (III) are known and/or can be prepared by processes known per se.

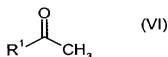
25

The formula (IV) provides a general definition of the benzoyl ketones to be used as starting materials in the processes (b), (c) and (d) according to the invention for preparing compounds of the general formula (I). In the general formula (IV), n , A , R^1 , R^3 , R^4 and Z each preferably have those meanings which have already been

mentioned above, in connection with the description of the compounds of the general formula (I) according to the invention, as being preferred, particularly preferred, very particularly preferred or most preferred for n, A, R¹, R³, R⁴ and Z.

- 5 The starting materials of the general formula (IV) have hitherto not been disclosed in the literature; they also, as novel substances, form part of the subject-matter of the present application.

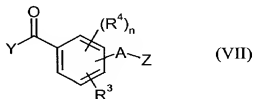
- 10 The novel benzoyl ketones of the general formula (IV) are obtained when ketones of the general formula (VI)



in which

- 15 R¹ is as defined above,

are reacted with benzoic acid derivatives of the general formula (VII)



- 20 in which

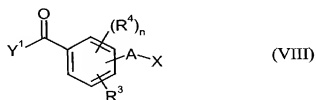
n, A, R³, R⁴ and Z are each as defined above, and

- 25 Y represents halogen (in particular fluorine, chlorine or bromine) or represents optionally substituted alkoxy (in particular methoxy, ethoxy or ethoxy-ethoxy),

if appropriate in the presence of a reaction auxiliary, such as, for example, sodium hydride, and if appropriate in the presence of a diluent, such as, for example, tetrahydrofuran, at temperatures between 0°C and 100°C (cf. the Preparation Examples).

5 The benzoic acid derivatives of the general formula (VII) required as intermediates are known and/or can be prepared by processes known per se (cf. DE-A-38 39 480, DE-A-42 39 296, EP-A-597 360, EP-A-609 734, DE-A-43 03 676, EP-A-617 026, DE-A-44 05 614, US-A-5 378 681).

10 The benzoic acid derivatives of the general formula (VII) are obtained when halogeno(alkyl)benzoic acid derivatives of the general formula (VIII)



in which

15 n, A, R³ and R⁴ are each as defined above and

X represents halogen (in particular fluorine, chlorine or bromine) and

20 Y¹ represents optionally substituted alkoxy (in particular methoxy, ethoxy or ethoxyethoxy),

are reacted with compounds of the general formula (III),

25 H-Z (III)

in which

Z is as defined above,

if appropriate in the presence of a reaction auxiliary, such as, for example, sodium hydride, triethylamine or potassium carbonate, and if appropriate in the presence of a diluent, such as, for example, acetone, acetonitrile, N,N-dimethylformamide or N,N-dimethyl-acetamide, at temperatures between 50°C and 200°C (cf. the Preparation Examples).

The halogeno(alkyl)benzoic acid derivatives of the formula (VIII) required as intermediates are known and/or can be prepared by processes known per se (cf. EP-A-90 369, EP-A-93 488, EP-A-399 732, EP-A-480 641, EP-A-609 798, EP-A-763 524, DE-A-21 26 720, WO-A-93/03722, WO-A-97/38977, US-A-39 78 127, US-A-48 37 333).

The process (b) according to the invention for preparing the compounds of the formula (I) is carried out using orthoformic esters or N,N-dimethylformamide acetals. These compounds preferably contain alkyl groups having 1 to 4 carbon atoms, in particular methyl or ethyl. Examples which may be mentioned are trimethyl orthoformate, triethyl orthoformate, N,N-dimethyl-formamide dimethyl acetal and N,N-dimethyl-formamide diethyl acetal.

The process (c) according to the invention for preparing the compounds of the formula (I) is carried out using alkyl cyanoformates or alkyl chloro-hydroximino-acetates. These compounds preferably contain alkyl groups having 1 to 4 carbon atoms, in particular methyl or ethyl. Examples which may be mentioned are methyl cyanoformate, ethyl cyanoformate, methyl chloro-hydroximino-acetate and ethyl chloro-hydroximino-acetate.

The process (d) according to the invention for preparing the compounds of the formula (I) is carried out using (carbon disulphide and) alkylating agents. These compounds preferably contain alkyl groups having 1 to 4 carbon atoms, in particular

methyl or ethyl. Examples which may be mentioned are methyl chloride, methyl bromide, methyl iodide, dimethyl sulphate, ethyl chloride, ethyl bromide, ethyl iodine and diethyl sulphate.

5 The processes (b), (c) and - if appropriate - (d) according to the invention for preparing the compounds of the formula (I) are carried out using hydroxylamine or an acid adduct thereof. A preferred acid adduct which may be mentioned is hydroxylamine hydrochloride.

10 The processes according to the invention for preparing the compounds of the general formula (I) are preferably carried out using diluents. Suitable diluents for carrying out the processes (a), (b), (c) and (d) according to the invention are, in addition to water, especially inert organic solvents. These include, in particular, aliphatic, alicyclic or aromatic, optionally halogenated hydrocarbons, such as, for example,
15 benzene, toluene, xylene, chlorobenzene, dichlorobenzene, petroleum ether, hexane, cyclohexane, dichloromethane, chloroform, carbon tetrachloride; ethers, such as diethyl ether, diisopropyl ether, dioxane, tetrahydrofuran or ethylene glycol dimethyl ether or ethylene glycol diethyl ether; ketones, such as acetone, butanone or methyl isobutyl ketone; nitriles, such as acetonitrile, propionitrile or butyronitrile;
20 amides, such as N,N-dimethylformamide, N,N-dimethylacetamide, N-methyl-formanilide, N-methyl-pyrrolidone or hexamethylphosphoric triamide; esters, such as methyl acetate or ethyl acetate, sulphoxides, such as dimethyl sulphoxide, alcohols, such as methanol, ethanol, n- or i-propanol, ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, diethylene glycol monomethyl ether, diethylene
25 glycol monoethyl ether, mixtures thereof with water or pure water.

Suitable reaction auxiliaries for the processes (a), (b), (c) and (d) according to the invention are, in general, the customary inorganic or organic bases or acid acceptors. These preferably include alkali metal or alkaline earth metal acetates, amides,
30 carbonates, bicarbonates, hydrides, hydroxides or alkoxides, such as, for example, sodium acetate, potassium acetate or calcium acetate, lithium amide, sodium amide,

potassium amide or calcium amide, sodium carbonate, potassium carbonate or calcium carbonate, sodium bicarbonate, potassium bicarbonate or calcium bicarbonate, lithium hydride, sodium hydride, potassium hydride or calcium hydride, lithium hydroxide, sodium hydroxide, potassium hydroxide or calcium hydroxide, sodium methoxide, ethoxide, n- or i-propoxide, n-, i-, s- or -t-butoxide or potassium methoxide, ethoxide, n- or i-propoxide, n-, i-, s- or t-butoxide; furthermore also basic organic nitrogen compounds, such as, for example, trimethylamine, triethylamine, tripropylamine tributylamine ethyl-diisopropylamine N,N-dimethyl-cyclohexylamine, dicyclohexylamine ethyl-dicyclohexylamine, N,N-dimethylaniline, N,N-dimethyl-benzylamine, pyridine, 2-methyl-, 3-methyl-, 4-methyl-, 2,4-dimethyl-, 2,6-dimethyl-, 3,4-dimethyl- and 3,5-dimethylpyridine, 5-ethyl-2-methyl-pyridine, 4-dimethylamino-pyridine, N-methylpiperidine, 1,4-diazabicyclo[2.2.2]-octane (DABCO), 1,5-diazabicyclo[4.3.0]-non-5-ene (DBN), or 1,8-diazabicyclo[5.4.0]-undec-7-ene (DBU).

When carrying out the processes (a), (b), (c) and (d) according to the invention, the reaction temperatures can be varied within a relatively wide range. In general, the processes are carried out at temperatures between 0°C and 150°C, preferably between 10°C and 120°C.

The processes according to the invention are generally carried out under atmospheric pressure. However, it is also possible to carry out the processes according to the invention under elevated or reduced pressure - in general between 0.1 bar and 10 bar.

For carrying out the processes according to the invention, the starting materials are generally employed in approximately equimolar amounts. However, it is also possible for one of the components to be used in a relatively large excess. The reaction is generally carried out in a suitable diluent in the presence of a reaction auxiliary, and the reaction mixture is generally stirred at the required temperature for several hours. Work-up is carried out by customary methods (cf. the Preparation Examples).

5 The active compounds according to the invention can be used as defoliants, desiccants, haulm killers and, especially, as weed killers. By weeds in the broadest sense there are to be understood all plants which grow in locations where they are undesired. Whether the substances according to the invention act as total or selective herbicides depends essentially on the amount used.

10 The active compounds according to the invention can be used, for example, in connection with the following plants:

15 Dicotyledonous weeds of the genera: Sinapis, Lepidium, Galium, Stellaria, Matricaria, Anthemis, Galinsoga, Chenopodium, Urtica, Senecio, Amaranthus, Portulaca, Xanthium, Convolvulus, Ipomoea, Polygonum, Sesbania, Ambrosia, Cirsium, Carduus, Sonchus, Solanum, Rorippa, Rotala, Lindernia, Lamium, Veronica, Abutilon, Emex, Datura, Viola, Galcopsis, Papaver, Centaurea, Trifolium, Ranunculus, Taraxacum.

20 Dicotyledonous crops of the genera: Gossypium, Glycine, Beta, Daucus, Phaseolus, Pisum, Solanum, Linum, Ipomoea, Vicia, Nicotiana, Lycopersicon, Arachis, Brassica, Lactuca, Cucumis, Cucurbita.

25 Monocotyledonous weeds of the genera: Echinochloa, Setaria, Panicum, Digitaria, Phleum, Poa, Festuca, Eleusine, Brachiaria, Lolium, Bromus, Avena, Cyperus, Sorghum, Agropyron, Cynodon, Monochoria, Fimbristylis, Sagittaria, Eleocharis, Scirpus, Paspalum, Ischaemum, Sphenoclea, Dactyloctenium, Agrostis, Alopecurus, Apera.

30 Monocotyledonous crops of the genera: Oryza, Zea, Triticum, Hordeum, Avena, Secale, Sorghum, Panicum, Saccharum, Ananas, Asparagus, Allium.

However, the use of the active compounds according to the invention is in no way restricted to these genera, but also extends in the same manner to other plants.

5 Depending on the concentration, the compounds according to the invention are suitable for total weed control, for example on industrial terrain and rail tracks and on paths and areas with or without tree growth. Equally, the compounds according to the invention can be employed for controlling weeds in perennial crops, for example forests, ornamental tree plantings, orchards, vineyards, citrus groves, nut orchards, banana plantations, coffee plantations, tea plantations, rubber plantations, oil palm
10 plantations, cocoa plantations, soft fruit plantings and hop fields, on lawns and turf and pastures and for selective weed control in annual crops.

The compounds of the formula (I) according to the invention have strong herbicidal activity and a broad activity spectrum when used on the soil and on above-ground
15 parts of plants. To a certain extent they are also suitable for selective control of monocotyledonous and dicotyledonous weeds in monocotyledonous and dicotyledonous crops, both by the pre-emergence and by the post-emergence method.

The active compounds can be converted into the customary formulations, such as solutions, emulsions, wettable powders, suspensions, powders, dusts, pastes, soluble
20 powders, granules, suspo-emulsion concentrates, natural and synthetic substances impregnated with active compound, and microencapsulations in polymeric substances.

25 These formulations are produced in a known manner, for example by mixing the active compounds with extenders, that is to say liquid solvents and/or solid carriers, optionally with the use of surfactants, that is to say emulsifiers and/or dispersants and/or foam formers.

30 If the extender used is water, it is also possible to use, for example, organic solvents as auxiliary solvents. Liquid solvents which are mainly suitable are: aromatics, such

as xylene, toluene or alkylnaphthalenes, chlorinated aromatics and chlorinated aliphatic hydrocarbons, such as chlorobenzenes, chloroethylenes or methylene chloride, aliphatic hydrocarbons, such as cyclohexane or paraffins, for example petroleum fractions, mineral and vegetable oils, alcohols, such as butanol or glycol, and also their ethers and esters, ketones, such as acetone, methyl ethyl ketone, methyl isobutyl ketone or cyclohexanone, strongly polar solvents, such as dimethyl-formamide and dimethyl sulphoxide, and water.

Suitable solid carriers are: for example ammonium salts and ground natural minerals, such as kaolins, clays, talc, chalk, quartz, attapulgite, montmorillonite or diatomaceous earth, and ground synthetic minerals, such as finely divided silica, alumina and silicates; suitable solid carriers for granules are: for example crushed and fractionated natural rocks, such as calcite, marble, pumice, sepiolite, dolomite and synthetic granules of inorganic and organic meals, and granules of organic material, such as sawdust, coconut shells, maize cobs and tobacco stalks; suitable emulsifiers and/or foam formers are: for example nonionic and anionic emulsifiers, such as polyoxyethylene fatty acid esters, polyoxyethylene fatty alcohol ethers, for example alkylaryl polyglycol ethers, alkylsulphonates, alkyl sulphates, aryl-sulphonates and protein hydrolysates; suitable dispersants are: for example lignosulphite waste liquors and methylcellulose.

Tackifiers, such as carboxymethylcellulose, natural and synthetic polymers in the form of powders, granules or latices, such as gum arabic, polyvinyl alcohol and polyvinyl acetate, and also natural phospholipids, such as cephalins and lecithins, and synthetic phospholipids can be used in the formulations. Other possible additives are mineral and vegetable oils.

It is possible to use dyestuffs, such as inorganic pigments, for example iron oxide, titanium oxide, Prussian blue, and organic dyestuffs, such as alizarin dyestuffs, azo dyestuffs and metal phthalocyanine dyestuffs, and trace nutrients, such as salts of iron, manganese, boron, copper, cobalt, molybdenum and zinc.

The formulations generally comprise between 0.1 and 95 per cent by weight of active compound, preferably between 0.5 and 90%.

- 5 For controlling weeds, the active compounds according to the invention, as such or in the form of their formulations, can also be used as mixtures with known herbicides, finished formulations or tank mixes being possible.

Possible components for the mixtures are known herbicides, for example

10 acetochlor, acifluorfen(-sodium), aclonifen, alachlor, alloxymid(-sodium), ametryne, amicarbazone, amidosulfuron, anilofos, asulam, atrazine, azafenidin, azimsulfuron, benazolin(-ethyl), benfuresate, bensulfuron(-methyl), bentazone, benzobicyclon, benzofenap, benzoilprop(-ethyl), bialaphos, bifenox, bispyribac(-sodium), bromobutide, bromofenoxim, bromoxynil, butachlor, butoxydim,

15 butylate, cafenstrole, caloxydim, carbetamide, carfentrazone(-ethyl), chlomethoxyfen, chloramben, chloridazon, chlorimuron(-ethyl), chlornitrofen, chlorosulfuron, chlorotoluron, cinidon(-ethyl), cinmethylin, cinosulfuron, clethodim, clodinafop(-propargyl), clomazone, clomeprop, clopyralid, clopyrasulfuron(-methyl), cloransulam(-methyl), cumyluron, cyanazine, cybutryne, cycloate, cyclosulfamuron,

20 cycloxydim, cyhalofop(-butyl), 2,4-D, 2,4-DB, 2,4-DP, desmedipham, diallate, dicamba, diclofop(-methyl), diclosulam, diethatyl(-ethyl), difenzoquat, diflufenican, diflufenzopyr, dimefuron, dimepiperate, dimethachlor, dimethametryn, dimethenamid, dimexyflam, dinitramine, diphenamid, diquat, dithiopyr, diuron, dymron, epoprodan, EPTC, esprocarb, ethalfuralin, ethametsulfuron(-methyl),

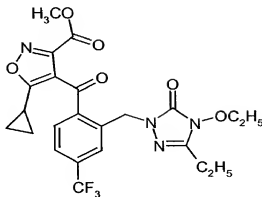
25 ethofumesate, ethoxyfen, ethoxysulfuron, etobenzanid, fenoxaprop(-P-ethyl), flamprop(-isopropyl), flamprop(-isopropyl-L), flamprop(-methyl), flazasulfuron, fluazifop(-P-butyl), fluazolate, flucarbazone, flufenacet, flumetsulam, flumiclorac(-pentyl), flumioxazin, flumipropyn, flumetsulam, fluometuron, fluorochloridone, fluoroglycofen(-ethyl), flupoxam, flupropacil, flurpysulfuron(-methyl, -sodium), flurenol(-butyl), fluridone, fluoxypyr(-methyl), flurprimidol,

30 flurtamone, fluthiacet(-methyl), fluthiamide, fomesafen, glufosinate(-ammonium),

glyphosate(-isopropylammonium), halosafen, haloxyfop(-ethoxyethyl), haloxyfop(-P-methyl), hexazinone, imazamethabenz(-methyl), imazamethapyr, imazamox, imazapic, imazapyr, imazaquin, imazethapyr, imazosulfuron, iodosulfuron(-methyl, -sodium), ioxynil, isopropalin, isoproturon, isouron, isoxaben, isoxachlortole, isoxaflutole, isoxapyrifop, lactofen, lenacil, linuron, MCPA, MCPP, mefenacet, mesotrione, metamitron, metazachlor, methabenzthiazuron, metobenzuron, metobromuron, (alpha)-metolachlor, metosulam, metoxuron, metribuzin, metsulfuron(-methyl), molinate, monolinuron, naproanilide, napropamide, neburon, nicosulfuron, norflurazon, orbencarb, oryzalin, oxadiargyl, oxadiazon, oxasulfuron, oxaziclomefone, oxyfluorfen, paraquat, pelargonic acid, pendimethalin, pentoxazone, phenmedipham, picolinafen, piperophos, pretilachlor, primisulfuron(-methyl), procarbazone, prometryn, propachlor, propanil, propaquizafop, propisochlor, propyzamide, prosulfocarb, prosulfuron, pyraflufen(-ethyl), pyrazolate, pyrazosulfuron(-ethyl), pyrazoxyfen, pyribenzoxim, pyributicarb, pyridate, pyriminobac(-methyl), pyriothiobac(-sodium), quinchlorac, quinmerac, quinclamine, quizalofop(-P-ethyl), quizalofop(-P-tefuryl), rimsulfuron, sethoxydim, simazine, simetryn, sulcotrione, sulfentrazone, sulfometuron(-methyl), sulfosate, sulfosulfuron, tebutam, tebuthiuron, tepraloxydim, terbuthylazine, terbutryn, thenylchlor, thiaflumide, thiazopyr, thidiazimin, thifensulfuron(-methyl), thiobencarb, tio-carbazil, tralkoxydim, triallate, triasulfuron, tribenuron(-methyl), triclopyr, tridiphane, trifluralin, triflusulfuron and tritosulfuron.

A mixture with other known active compounds, such as fungicides, insecticides, acaricides, nematocides, bird repellents, plant nutrients and agents which improve soil structure, is also possible.

The active compounds can be used as such, in the form of their formulations or in the use forms prepared therefrom by further dilution, such as ready-to-use solutions, suspensions, emulsions, powders, pastes and granules. They are used in the customary manner, for example by watering, spraying, atomizing, scattering.

Preparation Examples**Example 1**

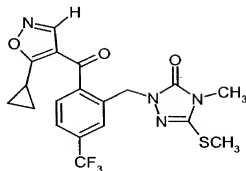
5 (Process (a))

At room temperature (about 20°C), a solution of 1.20 g (33% pure, i.e. 2.8 mMol) of methyl 4-(3-bromomethyl-5-trifluoromethyl-benzoyl)-5-cyclopropyl-isoxazole-3-carboxylate in 10 ml of N,N-dimethyl-formamide is added dropwise with stirring to a mixture of 0.44 g (2.8 mMol) of 4-ethoxy-5-ethyl-2,4-dihydro-3H-1,2,4-triazol-3-one, 84 mg (2.8 mMol) of sodium hydride (75% pure) and 20 ml of N,N-dimethyl-formamide, and the reaction mixture is stirred at room temperature for 30 minutes. The mixture is then diluted with saturated aqueous sodium chloride solution to about twice its original volume and extracted twice with ethyl acetate. The combined organic extract solutions are dried with sodium sulphate and filtered. The filtrate is concentrated under water pump vacuum and the residue is purified by column chromatography (silica gel, hexane/ethyl acetate, vol.: 7/3).

This gives 0.45 g (96% of theory based on 33% pure starting material) of (5-cyclopropyl-3-methoxycarbonyl-isoxazol-4-yl)-[2-(4-ethoxy-3-ethyl-5-oxo-4,5-dihydro-[1,2,4]-triazol-1-yl-methyl)-4-trifluoromethyl-phenyl]-methanone as an amorphous product.

logP (determined at pH=2.3): 3.56.

25

Example 2

(process (b))

- 5 A mixture of 1.5 g (36 mMol) of 1-cyclopropyl-3-[2-(4-methyl-3-methylthio-5-oxo-4,5-dihydro-[1,2,4]-triazol-1-yl-methyl)-4-trifluoromethyl-phenyl]-propane-1,3-dione, 0.56 g (46 mMol) of N,N-dimethyl-formamide dimethyl acetal and 15 ml of toluene is stirred at 90°C for 60 minutes. The mixture is then concentrated under water pump vacuum, the residue is taken up in 15 ml of ethanol and the mixture is, after addition
- 10 of 0.25 g (36 mMol) of hydroxylamine hydrochloride, stirred at room temperature (about. 20°C) for two hours. The mixture is concentrated under water pump vacuum, the residue is shaken with methylene chloride/water and the organic phase is separated off, washed with saturated aqueous sodium chloride solution, dried with sodium sulphate and filtered. The filtrate is concentrated under water pump vacuum
- 15 and the residue is purified by column chromatography (silica gel, ethyl acetate/hexane, vol: 1/1).

This gives 0.20 g (13% of theory) of (5-cyclopropyl-isoxazol-4-yl)-[2-(4-methyl-3-methylthio-5-oxo-4,5-dihydro-[1,2,4]-triazol-1-yl-methyl)-4-trifluoromethyl-phenyl]-methanone as an amorphous product.

20

logP (determined at pH=2.3): 2.94.

Analogously to Examples 1 and 2, and in accordance with the general description of

25 the preparation process according to the invention, it is also possible to prepare, for

example, the compounds of the general formula (I) - or of the formulae (IA), (IB), (IC) or (ID) - listed in Tables 1 and 1a below.

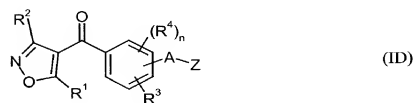
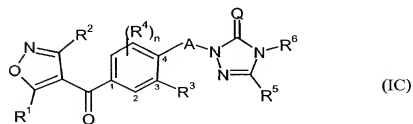
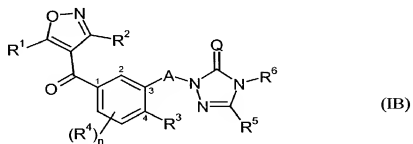
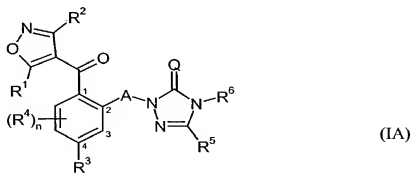














Table 1: Examples of the compounds of the formulae (I) or (IA), (IB), (IC)

Ex.- No.	A	Q	R ¹	R ²	R ³	(position) (R ⁴) _n	R ⁵	R ⁶	(Formula) physical data
3	CH ₂	O			Br	-	OC ₂ H ₅	CH ₃	(IA) logP = 3.15 ^{a)}
4	CH ₂	O			Br	-	C ₂ H ₅	OC ₂ H ₅	(IA) logP = 3.36 ^{b)}
5	CH ₂	O			Br	-	CF ₃	CH ₃	(IA) logP = 3.50 ^{a)}
6	CH ₂	O			CF ₃	-	OC ₂ H ₅	CH ₃	(IA) logP = 3.32 ^{a)}
7	CH ₂	O			CF ₃	-	SCH ₃	CH ₃	(IA) logP = 3.22 ^{a)}
8	CH ₂	O		H	Cl	(2) Cl	CF ₃	CH ₃	(IB) ¹ H-NMR (DMSO-D ₆ , δ): 8.7 ppm
9	CH ₂	O		H	F	-	SCH ₃	CH ₃	(IA) ¹ H-NMR (CDCl ₃ , δ): 8.3 ppm






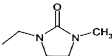

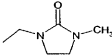

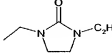

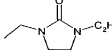

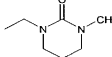

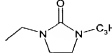

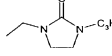

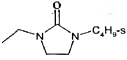

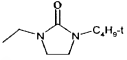

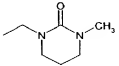

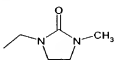

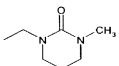

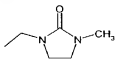

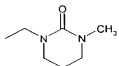

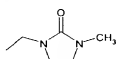

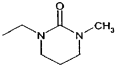

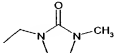

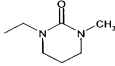

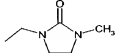

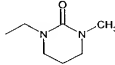

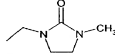

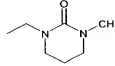

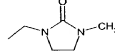

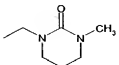

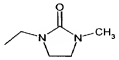

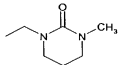

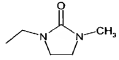

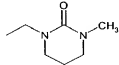

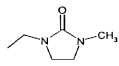

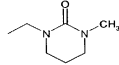

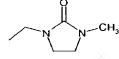
Ex.- No.	A	Q	R ¹	R ²	R ³	(position) (R ⁴) _n	R ⁵	R ⁶	(Formula) physical data
10	CH ₂	O		H	Cl	(2) OCH ₃	CF ₃	CH ₃	(IB) ¹ H-NMR (DMSO-D ₆ , δ): 8.6 ppm
11	CH ₂	O		H	Cl	(2) Cl	OC ₂ H ₅	CH ₃	(IB) ¹ H-NMR (DMSO-D ₆ , δ): 8.7 ppm
12	CH ₂	O		H	Cl	(2) Cl	OCH ₃	CH ₃	(IB) ¹ H-NMR (DMSO-D ₆ , δ): 8.7 ppm
13	CH ₂	O		H	CF ₃	-	OCH ₃	CH ₃	(IA)


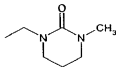

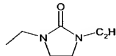

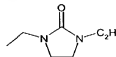

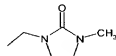

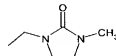

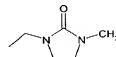

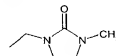

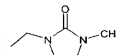
Table 1a: Examples of the compounds of the formula (I) or (ID)


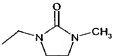

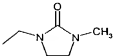

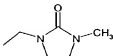

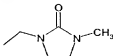

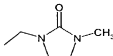

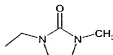


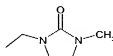


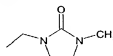
Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-1		H	(2) Cl	(4) Cl	(3) 	logP = 2.48 ^{a)}
ID-2		H	(2) OCH ₃	(4) Cl	(3) 	logP = 2.46 ^{a)}
ID-3		H	(2) Cl	(4) Cl	(3) 	
ID-4		H	(2) OCH ₃	(4) Cl	(3) 	
ID-5		H	(2) Cl	(4) Cl	(3) 	
ID-6		H	(2) Cl	(4) Cl	(3) 	
ID-7		H	(2) Cl	(4) Cl	(3) 	



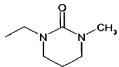


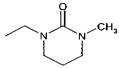

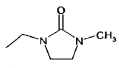

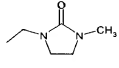

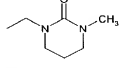

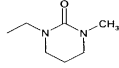

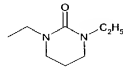
Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-8		H	(2) Cl	(4) Cl	(3) 	
ID-9		H	(2) Cl	(4) Cl	(3) 	
ID-10		H	(2) OCH ₃	(4) Cl	(3) 	
ID-11		H	(2) Cl	(4) SO ₂ CH ₃	(3) 	
ID-12		H	(2) Cl	(4) SO ₂ CH ₃	(3) 	
ID-13		H	(2) SO ₂ CH ₃	(4) Cl	(3) 	
ID-14		H	(2) SO ₂ CH ₃	(4) Cl	(3) 	
ID-15		H	(2) Cl	(4) CF ₃	(3) 	


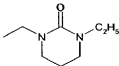

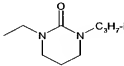

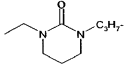

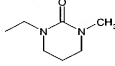

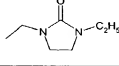

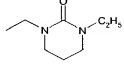




Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-16		H	(2) Cl	(4) CF ₃	(3) 	
ID-17		H	(2) NO ₂	(4) CF ₃	(3) 	
ID-18		H	(2) NO ₂	(4) CF ₃	(3) 	
ID-19		H	(2) OCH ₃	(4) CF ₃	(3) 	
ID-20		H	(2) OCH ₃	(4) CF ₃	(3) 	
ID-21		H	(2) Cl	(4) CN	(3) 	
ID-22		H	(2) Cl	(4) CN	(3) 	
ID-23		H	(2) OCH ₃	(4) CN	(3) 	


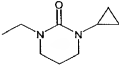

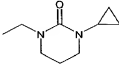

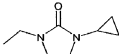

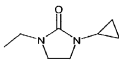

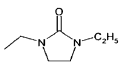

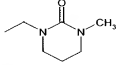

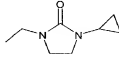

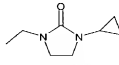
Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-24		H	(2) OCH ₃	(4) CN	(3) 	
ID-25		H	(2) Cl	(4) F	(3) 	
ID-26		H	(2) Cl	(4) F	(3) 	
ID-27		H	H	-	(2) 	
ID-28		H	H	-	(2) 	
ID-29		H	(4) F	-	(2) 	
ID-30		H	(4) F	-	(2) 	
ID-31		H	(4) Cl	-	(2) 	


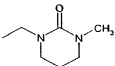

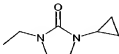

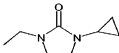

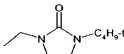

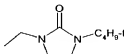

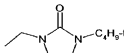

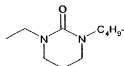

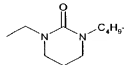
Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-32		H	(4) Cl	-	(2) 	
ID-33		H	(4) F	-	(2) 	
ID-34		H	(4) Cl	-	(2) 	
ID-35		H	(4) Br	-	(2) 	
ID-36		H	(4) I	-	(2) 	
ID-37		H	(4) NO ₂	-	(2) 	
ID-38		H	(4) CN	-	(2) 	
ID-39		H	(4) CF ₃	-	(2) 	

Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-40		H	(4) SO ₂ CH ₃	-	(2) 	
ID-41		H	(4) OCH ₃	-	(2) 	
ID-42		H	(4) OCF ₃	-	(2) 	
ID-43		H	(4) OCHF ₂	-	(2) 	
ID-44		H	(4) SCH ₃	-	(2) 	
ID-45		H	(4) SOCH ₃	-	(2) 	
ID-46			(2) Cl	(4) Cl	(3) 	
ID-47			(2) OCH ₃	(4) Cl	(3) 	


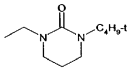
Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-48			(2) Cl	(4) Cl	(3) 	
ID-49			(2) OCH ₃	(4) Cl	(3) 	
ID-50		SCH ₃	(2) Cl	(4) Cl	(3) 	
ID-51		SCH ₃	(2) OCH ₃	(4) Cl	(3) 	
ID-52		SCH ₃	(2) Cl	(4) Cl	(3) 	
ID-53		SCH ₃	(2) OCH ₃	(4) Cl	(3) 	
ID-54		H	(2) Cl	(4) Cl	(3) 	

Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-55		H	(2) OCH ₃	(4) Cl	(3) 	
ID-56		H	(2) Cl	(4) Cl	(3) 	
ID-57		H	(2) OCH ₃	(4) Cl	(3) 	
ID-58		H	(4) CF ₃	-	(2) 	
ID-59		H	(4) CF ₃	-	(2) 	
ID-60		H	(4) CF ₃	-	(2) 	
ID-61		H	(2) Cl	(4) Cl	(3) 	
ID-62		H	(2) OCH ₃	(4) Cl	(3) 	

Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-63		H	(2) Cl	(4) Cl	(3) 	
ID-64		H	(2) OCH ₃	(4) Cl	(3) 	
ID-65		H	(2) Cl	(4) Cl	(3) 	
ID-66		H	(2) OCH ₃	(4) Cl	(3) 	
ID-67		H	(2) NO ₂	(4) SO ₂ CH ₃	(3) 	
ID-68		H	(2) NO ₂	(4) SO ₂ CH ₃	(3) 	
ID-69		H	(2) Cl	(4) SO ₂ CH ₃	(3) 	
ID-70		H	(2) NO ₂	(4) SO ₂ CH ₃	(3) 	

Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-71		H	(2) NO ₂	(4) CF ₃	(3) 	
ID-72		H	(2) NO ₂	(4) CF ₃	(3) 	
ID-73		H	(2) NO ₂	(4) CF ₃	(3) 	
ID-74		H	(2) Cl	(4) SO ₂ CH ₃	(3) 	
ID-75		H	(2) NO ₂	(4) SO ₂ CH ₃	(3) 	
ID-76		H	(2) NO ₂	(4) CF ₃	(3) 	
ID-77		H	(2) Cl	(4) SO ₂ CH ₃	(3) 	
ID-78		H	(2) NO ₂	(4) SO ₂ CH ₃	(3) 	

- 100 -

Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	physical data
ID-79		H	(2) NO ₂	(4) CF ₃	(3) 	

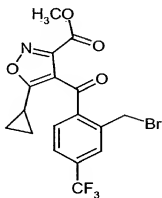
The logP values given in Table 1 were determined in accordance with EEC Directive 79/831 Annex V.A8 by HPLC (High Performance Liquid Chromatography) using a reverse-phase column (C 18). Temperature: 43°C.

(a) Mobile phases for the determination in the acidic range: 0.1% aqueous phosphoric acid, acetonitrile; linear gradient from 10 % acetonitrile to 90 % acetonitrile - the corresponding data in Table 1 are labelled a).

(b) Mobile phases for the determination in the neutral range: 0.01 molar aqueous phosphate buffer solution, acetonitrile; linear gradient from 10% acetonitrile to 90% acetonitrile - the corresponding data in Table 1 are labelled b).

Calibration was carried out using unbranched alkan-2-ones (with from 3 to 16 carbon atoms) whose logP values are known (determination of the logP values by the retention times using linear interpolation between two successive alkanones).

The lambda-max values were determined in the maxima of the chromatographic signals, using the UV spectra from 200 nm to 400 nm.

Starting materials of the formula (II)**Example (II-1)**

5

10

A mixture of 3.0 g (8.5 mMol) of methyl 5-cyclopropyl-4-(2-methyl-4-trifluoro-methyl-benzoyl)-isoxazole-4-carboxylate, 1.5 g (8.5 mMol) of N-bromo-succini-mide, 0.15 g of 2,2'-azo-bis-isobutyronitrile and 45 ml of carbon tetrachloride is heated under reflux for two hours and, after cooling, filtered. The filtrate is diluted with methylene chloride to about twice its original volume, washed with 20% strength aqueous sodium hydrogen sulphite solution, dried with sodium sulphate and filtered. From the filtrate, the solvent is carefully distilled off under water pump vacuum.

15

This gives 2.5 g (68% of theory) of methyl 5-cyclopropyl-4-(2-bromomethyl-4-trifluoromethyl-benzoyl)-isoxazole-4-carboxylate as an amorphous product which can be reacted further without any purification.

20

Analogously to Example (II-1), it is also possible to prepare, for example, the compounds of the formula (II) listed in Table 2 below.

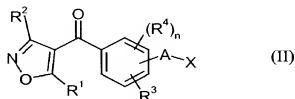







































Table 2: Examples of the compounds of the formula (II)

Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) A-X	physical data
II-2			(4) Br	-	(2) CH ₂ Br	
II-3			(4) Cl	-	(2) CH ₂ Br	
II-4			(4) CH ₃	-	(2) CH ₂ Br	
II-5			(4) CN	-	(2) CH ₂ Br	
II-6			(4) OCH ₃	-	(2) CH ₂ Br	
II-7			(4) SCH ₃	-	(2) CH ₂ Br	
II-8			(4) SO ₂ CH ₃	-	(2) CH ₂ Br	
II-9			(4) SO ₂ N(CH ₃) ₂	-	(2) CH ₂ Br	
II-10		SCH ₃	(4) CF ₃	-	(2) CH ₂ Br	

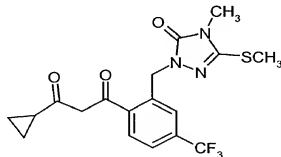
Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) A-X	physical data
II-11			(4) OCHF ₂	-	(2) CH ₂ Br	
II-12			(4) OCF ₃	-	(2) CH ₂ Br	
II-13			(4) NO ₂	-	(2) CH ₂ Br	
II-14			(4) Cl	(2) Cl	(3) CH ₂ Br	
II-15		H	(4) Cl	(2) Cl	(3) CH ₂ Br	
II-16			(4) Cl	(2) Cl	(3) CH ₂ Br	
II-17			H	-	(3) CH ₂ Br	
II-18		H	H	-	(3) CH ₂ Br	
II-19		H	(4) Cl	(2) OCH ₃	(3) CH ₂ Br	
II-20		H	(4) CH ₃	(3) OCH ₃	(2) CH ₂ Br	
II-21		H	(4) CN	(3) OCH ₃	(2) CH ₂ Br	

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Ex.- No.	R ¹	R ²	(position) R ³	(position) (R ⁴) _n	(position) A-X	physical data
II-22		H	(4) SO ₂ CH ₃	(3) CH ₂ OCH ₃	(2) CH ₂ Br	
II-23		H	(4) CF ₃	(3) CH ₂ OCH ₃	(2) CH ₂ Br	
II-24		H	(4) F	(2) Cl	(3) CH ₂ Br	

Starting materials of the formula (IV)

5

Example (IV-1)

A mixture of 0.94 g (11 mMol) of cyclopropyl methyl ketone, 0.35 g (11 mMol) of sodium hydride (75% pure) and 15 ml of tetrahydrofuran is stirred at 20°C for 30 minutes. A solution of 2.0 g (5.5 mMol) of 4-methyl-5-methylthio-2-(2-methoxycarbonyl-5-trifluoromethyl-benzyl)-2,4-dihydro-3H-1,2,4-triazol-3-one in 8 ml of tetrahydrofuran is then added dropwise and, after addition of 0.2 g of dibenzo-18-crone-6, the reaction mixture is heated under reflux for 60 minutes. After cooling to room temperature, the mixture is diluted with 100 ml of ethyl acetate, shaken with saturated aqueous ammonium chloride solution, dried with sodium sulphate and

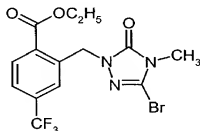
- 105 -

filtered through silica gel. From the filtrate, the solvent is carefully distilled off under water pump vacuum.

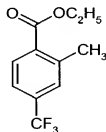
This gives 1.5 g (66 % of theory) of 1-cyclopropyl-3-[4-methyl-3-methylthio-5-oxo-4,5-dihydro-[1,2,4]-triazol-1-yl-methyl]-phenyl]-propane-1,3-dione as an amorphous product which can be reacted further without purification.

Starting materials of the formula (VII)

10 Example (VII-1)



Step 1



15

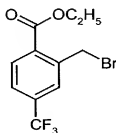
20

10 g (49 mMol) of 2-methyl-4-trifluoromethyl-benzoic acid are dissolved in 150 ml of ethanol and admixed with 1 ml of conc. sulphuric acid. The mixture is heated under reflux for 24 hours and then concentrated, the residue is taken up in methylene chloride and the mixture is extracted with saturated aqueous sodium bicarbonate solution. The methylene chloride phase is dried over sodium sulphate and concentrated under water pump vacuum.

- 106 -

This gives 9 g (80% of theory) of ethyl 2-methyl-4-trifluoromethyl-benzoate as an amorphous residue.

Step 2



5

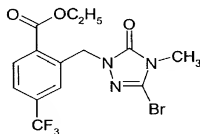
9 g (39 mMol) of ethyl 2-methyl-4-trifluoromethyl-benzoate are dissolved in 200 ml of carbon tetrachloride and admixed with 7 g (39 mMol) of *N*-bromo-succinimide and 0.1 g of dibenzoyl peroxide. After 6 hours of heating under reflux, the succinimide which has separated off is filtered off, and the filtrate is concentrated under water pump vacuum.

10

This gives 12 g of an amorphous residue which, in addition to ethyl 2-bromomethyl-4-trifluoromethyl-benzoate, contains 17% of ethyl 2,2-dibromomethyl-4-trifluoromethyl-benzoate and 12% of ethyl 2-methyl-4-trifluoromethyl-benzoate.

15

Step 3



20

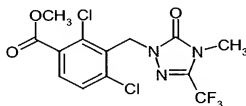
4 g of ethyl 2-bromomethyl-4-trifluoromethyl-benzoate (about 70% pure) and 2.28 g (12.8 mMol) of 5-bromo-4-methyl-2,4-dihydro-3H-1,2,4-triazol-3-one are dissolved in 150 ml of acetonitrile and the solution is admixed with 5.3 g (38.4 mMol) of potassium carbonate and heated under reflux with vigorous stirring for 2 hours. The

reaction mixture is taken up in water and repeatedly extracted with methylene chloride. The combined methylene chloride phases are dried over sodium sulphate, concentrated under water pump vacuum and chromatographed.

- 5 This gives 2 g (38% of theory) of 5-bromo-4-methyl-2-(2-ethoxycarbonyl-5-trifluoromethyl-benzyl)-2,4-dihydro-3H-1,2,4-triazol-3-one as an amorphous product.

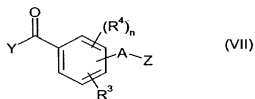
$^1\text{H-NMR}$ (CDCl_3 , δ): 5.46 ppm.

10 **Example (VII-2)**



- 15 6.7 g (40 mMol) of 4-methyl-5-trifluoromethyl-2,4-dihydro-3H-1,2,4-triazol-3-one are initially charged in 150 ml of acetonitrile and stirred with 11 g (80 mMol) of potassium carbonate. The mixture is heated to 50°C, and a solution of 13.1 g (44 mMol) of methyl 3-bromomethyl-2,4-dichloro-benzoate in 20 ml of acetonitrile is then added dropwise with stirring, and the reaction mixture is heated with stirring and at reflux for another 15 hours. The mixture is then concentrated under water
20 pump vacuum and the residue is taken up in methylene chloride, washed with 1N hydrochloric acid, dried with sodium sulphate and filtered. The filtrate is concentrated under reduced pressure, the residue is digested with petroleum ether and the resulting crystalline product is isolated by filtration with suction.
- 25 This gives 14.9 g (97% of theory) of 4-methyl-5-trifluoromethyl-2-(2,6-dichloro-3-methoxycarbonyl-benzyl)-2,4-dihydro-3H-1,2,4-triazol-3-one of melting point 109°C.

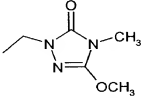
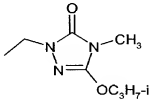
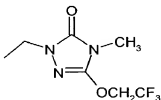
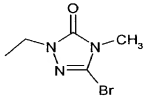
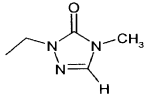
Analogously to the Examples (VII-1) and (VII-2), it is also possible to prepare, for example, the compounds of the general formula (VII) listed in Table 3 below.

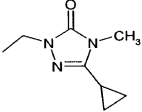
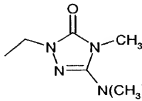
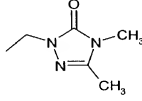
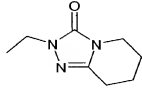
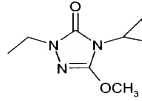


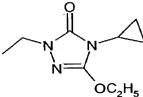
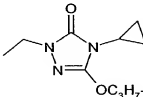
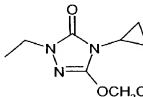
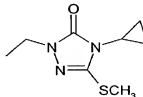
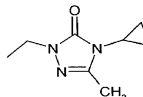
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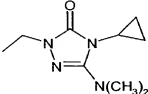
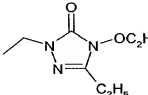
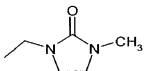
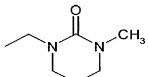
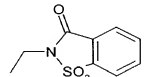
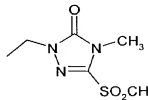
Table 3: Examples of the compounds of the formula (VII)

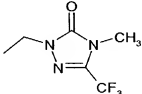
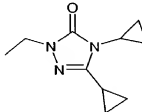
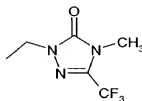
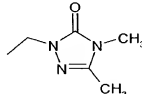
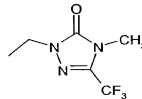
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-3	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 229°C logP = 2.27 ^{a)}
VII-4	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 120°C logP = 2.38 ^{a)}
VII-5	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 127°C logP = 2.55 ^{a)}

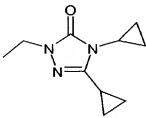

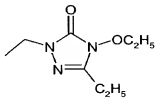
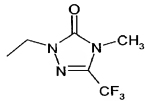
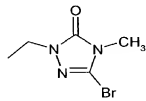
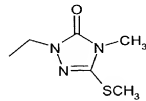
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-6	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 121°C logP = 2.04 ^{a)}
VII-7	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 68°C logP = 2.73 ^{a)}
VII-8	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 129°C logP = 2.72 ^{a)}
VII-9	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 164°C logP = 2.18 ^{a)}
VII-10	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 158°C logP = 1.55 ^{a)}

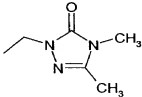
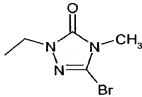
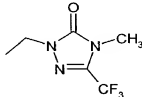
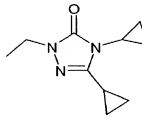
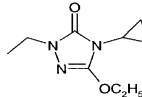
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-11	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 106°C logP = 2.16 ^{a)}
VII-12	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 126°C logP = 2.11 ^{a)}
VII-13	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 146°C logP = 1.65 ^{a)}
VII-14	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 178°C logP = 1.86 ^{a)}
VII-15	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 97°C logP = 2.36 ^{a)}

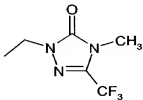
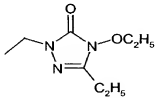
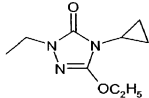
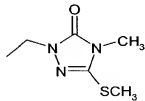
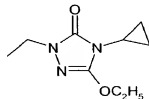
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-16	(2-) Cl	(4-) Cl	(3-) 	OCH_3	m.p.: 99°C logP = 2.73 ^{a)}
VII-17	(2-) Cl	(4-) Cl	(3-) 	OCH_3	m.p.: 56°C logP = 3.08 ^{a)}
VII-18	(2-) Cl	(4-) Cl	(3-) 	OCH_3	m.p.: 102°C logP = 3.05 ^{a)}
VII-19	(2-) Cl	(4-) Cl	(3-) 	OCH_3	m.p.: 131°C logP = 2.70 ^{a)}
VII-20	(2-) Cl	(4-) Cl	(3-) 	OCH_3	m.p.: 135°C logP = 1.97 ^{a)}

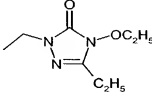
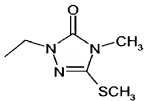
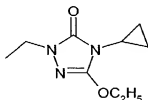
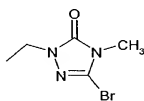
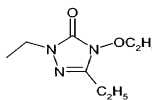
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-21	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 143°C logP = 2.42 ^{a)}
VII-22	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 85°C logP = 2.58 ^{a)}
VII-23	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	logP = 1.98 ^{a)}
VII-24	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	logP = 2.07 ^{a)}
VII-25	(2-) Cl	(4-) Cl	(3-) 	OCH ₃	m.p.: 157°C logP = 2.94 ^{a)}
VII-26	(4-) CF ₃	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.53 ppm.

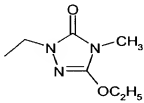
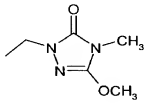
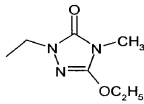
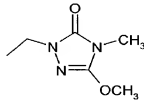
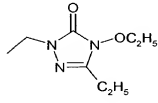
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-27	(4-) NO_2	-	(3-) 	OC_2H_5	$^1\text{H-NMR}$ (CDCl_3 , δ): 5.48 ppm.
VII-28	(4-) NO_2	-	(3-) 	OC_2H_5	$^1\text{H-NMR}$ (CDCl_3 , δ): 5.30 ppm.
VII-29	(4-) SO_2CH_3	-	(3-) 	OC_2H_5	$^1\text{H-NMR}$ (CDCl_3 , δ): 5.61 ppm.
VII-30	(4-) Cl	-	(3-) 	OC_2H_5	$^1\text{H-NMR}$ (CDCl_3 , δ): 5.08 ppm.
VII-31	(4-) Cl	-	(3-) 	OC_2H_5	$^1\text{H-NMR}$ (CDCl_3 , δ): 5.17 ppm.

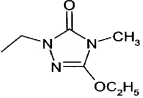
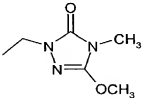
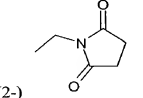
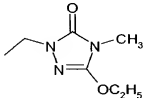
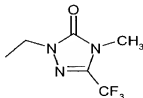
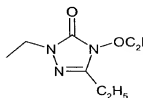
Ex. No.	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	Y	physical data
VII-32	(4-) Cl	-	(3-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.00 ppm
VII-33	(4-) SO ₂ CH ₃	-	(2-) 	OC ₂ H ₅	logP = 1.53 ^{a)}
VII-34	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 3.24 ^{a)}
VII-35	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 3.40 ^{a)}
VII-36	(4-) F	-	(3-) 	OC ₂ H ₅	logP = 2.41 ^{a)}
VII-37	(4-) F	-	(2-) 	OC ₂ H ₅	logP = 2.45 ^{a)}

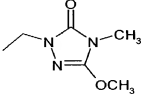
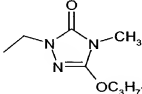
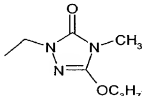
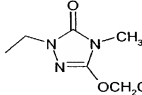
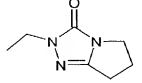
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-38	(4-) Br	-	(3-) 	OC_2H_5	$\log P = 2.06^a)$
VII-39	(4-) Br	-	(3-) 	OC_2H_5	$\log P = 2.64^a)$
VII-40	(4-) Br	-	(3-) 	OC_2H_5	$\log P = 3.23^a)$
VII-41	(4-) Br	-	(3-) 	OC_2H_5	$\log P = 3.02^a)$
VII-42	(4-) Cl	-	(2-) 	OC_2H_5	$\log P = 3.23^a)$

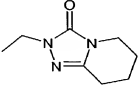
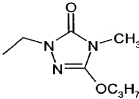
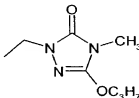
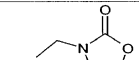
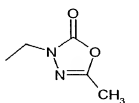
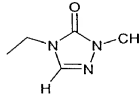
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-43	(4-) Cl	-	(2-) 	OC ₂ H ₅	logP = 3.31 ^{a)}
VII-44	(4-) Cl	-	(2-) 	OC ₂ H ₅	logP = 3.14 ^{a)}
VII-45	(4-) NO ₂	-	(2-) 	OC ₂ H ₅	logP = 2.42 ^{a)}
VII-46	(4-) NO ₂	-	(2-) 	OC ₂ H ₅	logP = 2.82 ^{a)}
VII-47	(4-) CF ₃	-	(2-) 	OC ₂ H ₅	logP = 3.48 ^{a)}

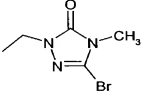
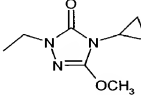
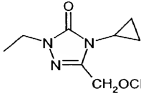
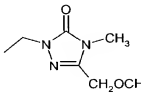
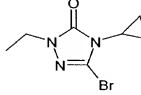
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-48	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 3.38^a)$
VII-49	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 3.02^a)$
VII-50	(4-) CF_3	-	(2-) 	OC_3H_7	$\log P = 3.91^a)$
VII-51	(4-) OCH_3	-	(2-) 	OC_2H_5	
VII-52	(4-) OCH_3	-	(2-) 	OC_2H_5	

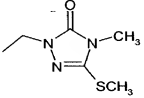
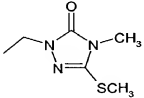
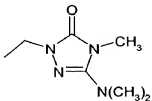
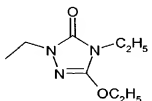
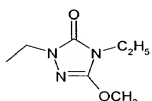
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-53	(4-) CF_3	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.37 ppm.
VII-54	(4-) CF_3	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.37 ppm.
VII-55	-	-	(2-) 	OC_2H_5	
VII-56	-	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.37 ppm.
VII-57	-	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.40 ppm.

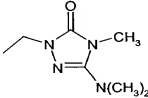
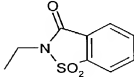
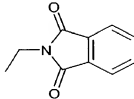
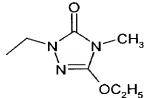
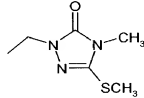
Ex. No.	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	Y	physical data
VII-58	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 2.95 ^{a)}
VII-59	(4-) Br	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.31 ppm.
VII-60	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 2.44 ^{a)}
VII-61	(4-) F	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.35 ppm.
VII-62	(4-) F	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.53 ppm.
VII-63	(4-) F	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.40 ppm.

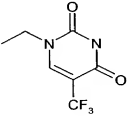
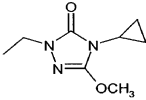
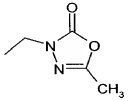
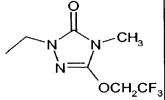
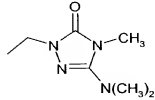
Ex. No.	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	Y	physical data
VII-64	(4-) F	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.36 ppm.
VII-65	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 3.34 ^{a)}
VII-66	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 3.38 ^{a)}
VII-67	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 3.31 ^{a)}
VII-68	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 2.16 ^{a)}

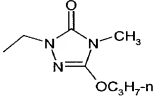
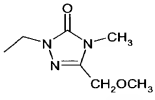
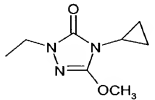
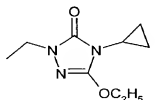
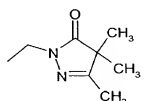
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-69	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 2.41 ^{a)}
VII-70	(4-) CF ₃	-	(2-) 	OC ₂ H ₅	logP = 3.51 ^{a)}
VII-71	(4-) CF ₃	-	(2-) 	OC ₂ H ₅	logP = 3.54 ^{a)}
VII-72	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 2.36 ^{a)}
VII-73	(4-) Br	-	(2-) 	OC ₂ H ₅	logP = 2.88 ^{a)}
VII-74	(4-) CF ₃	-	(2-) 	OC ₂ H ₅	logP = 2.68 ^{a)}

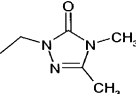
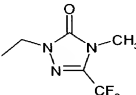
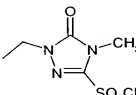
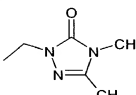
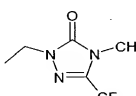
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-75	(4-) Br	-	(2-) 	OC_2H_5	$\log P = 2.80^a)$
VII-76	(4-) CF_3	-	(3-) 	OC_2H_5	$\log P = 3.87^a)$
VII-77	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 2.88^a)$
VII-78	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 2.60^a)$
VII-79	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 3.35^a)$

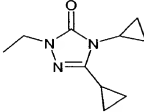
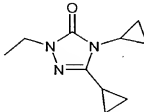
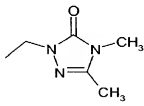
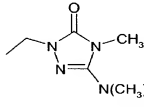
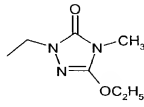
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-80	(4-) Br	-	(2-) 	OC_2H_5	$\log P = 2.86^a)$
VII-81	(4-) Cl	-	(2-) 	OC_2H_5	$\log P = 2.83^a)$
VII-82	(4-) Br	-	(2-) 	OC_2H_5	$\log P = 2.60^a)$
VII-83	(4-) CF_3	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.36 ppm.
VII-84	(4-) CF_3	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.37 ppm.

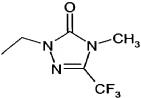
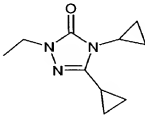
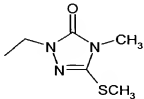
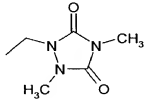
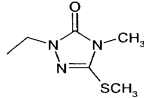
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-85	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 2.79^a)$
VII-86	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 3.67^a)$
VII-87	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 3.80^a)$
VII-88	(3-) CH_3	-	(2-) 	OC_2H_5	$\log P = 2.54^a)$
VII-89	(4-) SO_2CH_3	-	(2-) 	OC_2H_5	$\log P = 1.82^a)$

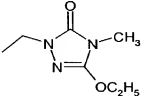
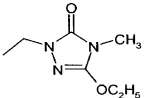
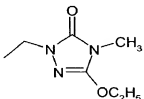
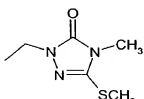
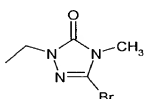
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-90	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 2.93^a)$
VII-91	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 3.08^a)$
VII-92	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 3.04^a)$
VII-93	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 3.45^a)$
VII-94	(4-) F	-	(2-) 	OC_2H_5	$\log P = 2.21^a)$

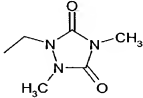
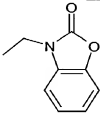
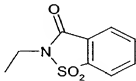
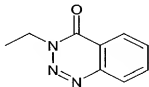
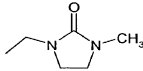
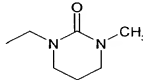
Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-95	(4-) F	-	(2-) 	OC ₂ H ₅	logP = 2.96 ^{a)}
VII-96	(4-) F	-	(2-) 	OC ₂ H ₅	logP = 2.05 ^{a)}
VII-97	(4-) F	-	(2-) 	OC ₂ H ₅	logP = 2.50 ^{a)}
VII-98	(4-) F	-	(2-) 	OC ₂ H ₅	logP = 2.89 ^{a)}
VII-99	(4-) CF ₃	-	(2-) 	OC ₂ H ₅	logP = 2.91 ^{a)}

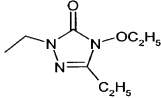
Ex. No.	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	Y	physical data
VII-100	(4-) Cl	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.39 ppm.
VII-101	(4-) Cl	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.50 ppm.
VII-102	(4-) Cl	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.49 ppm.
VII-103	(4-) CF ₃	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.29 ppm.
VII-104	(4-) CF ₃	-	(2-) 	OC ₂ H ₅	¹ H-NMR (CDCl ₃ , δ): 5.53 ppm.

Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-105	(4-) CF_3	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.34 ppm.
VII-106	(4-) SO_2CH_3	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.39 ppm.
VII-107	(4-) SO_2CH_3	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.43 ppm.
VII-108	(4-) SO_2CH_3	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.40 ppm.
VII-109	(4-) SO_2CH_3	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.38 ppm.

Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-110	(4-) Br	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.49 ppm.
VII-111	-	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.3 ppm.
VII-112	-	-	(2-) 	OC_2H_5	1H -NMR ($CDCl_3$, δ): 5.44 ppm.
VII-113	(4-) CF_3	-	(2-) 	OC_2H_5	$\log P = 2.58^{a)}$
VII-114	(4-) SO_2CH_3	-	(2-) 	OCH_3	$\log P = 1.53^{a)}$

Ex. No.	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	Y	physical data
VII-115	(4-) SO ₂ CH ₃	-	(2-) 	OCH ₃	logP = 1.59 ^{a)}
VII-116	(4-) I	-	(2-) 	OCH ₃	logP = 2.68 ^{a)}
VII-117	(4-) CF ₃	-	(2-) 	OCH ₃	logP = 2.74 ^{a)}
VII-118	(4-) CF ₃	-	(2-) 	OCH ₃	logP = 2.65 ^{a)}
VII-119	(4-) CF ₃	-	(2-) 	OC ₂ H ₅	logP = 2.96 ^{a)}

Ex. No.	(position) R ³	(position) (R ⁴) _n	(position) -A-Z	Y	physical data
VII-120	-	-	(2-) 	OCH ₃	m.p.: 106°C
VII-121	(4-) CF ₃	-	(2-) 	OCH ₃	logP = 3.37 ^{a)}
VII-122	(4-) CF ₃	-	(2-) 	OCH ₃	logP = 3.29 ^{a)}
VII-123	(4-) CF ₃	-	(2) 	OCH ₃	logP = 3.26 ^{a)}
VII-124	(4-) Cl	(2-) OCH ₃	(3) 	OCH ₃	¹ H-NMR (DMSO-D ₆ , δ): 4.44 ppm.
VII-125	(4-) Cl	(2-) OCH ₃	(3-) 	OCH ₃	¹ H-NMR (DMSO-D ₆ , δ): 4.66 ppm.

Ex. No.	(position) R^3	(position) $(R^4)_n$	(position) -A-Z	Y	physical data
VII-126	(4-) Cl	(2-) OCH_3	(3-) <div style="text-align: center;">  </div>	OCH_3	1H -NMR (DMSO- D_6 , δ): 4.95 ppm.

The logP values given in Table 3 were determined in accordance with EEC Directive 79/831 Annex V.A.8 by HPLC (High Performance Liquid Chromatography) using a reverse-phase column (C 18). Temperature: 43°C.

5

(a) Mobile phases for the determination in the acidic range: 0.1% aqueous phosphoric acid, acetonitrile; linear gradient from 10 % acetonitrile to 90 % acetonitrile - the corresponding data in Table 3 are labelled a).

10

(b) Mobile phases for the determination in the neutral range: 0.01 molar aqueous phosphate buffer solution, acetonitrile; linear gradient from 10% acetonitrile to 90% acetonitrile - the corresponding data in Table 3 are labelled b).

15

Calibration was carried out using unbranched alkan-2-ones (with from 3 to 16 carbon atoms) whose logP values are known (determination of the logP values by the retention times using linear interpolation between two successive alkanones).

The lambda-max values were determined in the maxima of the chromatographic signals, using the UV spectra from 200 nm to 400 nm.

20

Use Examples**Example A**

Pre-emergence test

5

Solvent: 5 parts by weight of acetone

Emulsifier: 1 part by weight of alkylaryl polyglycol ether

10

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent, the stated amount of emulsifier is added and the concentrate is diluted with water to the desired concentration.

15

Seeds of the test plants are sown in normal soil. After about 24 hours, the soil is sprayed with the preparation of active compound such that the particular amount of active compound desired is applied per unit area. The concentration of the spray liquor is chosen so that the particular amount of active compound desired is applied in 1000 litres of water per hectare.

20

After three weeks, the degree of damage to the plants is rated in % damage in comparison to the development of the untreated control.

The figures denote:

25

0% = no effect (like untreated control)

100% = total destruction

In this test, for example, the compounds of preparation examples 3 and 4 exhibit strong action against weeds, whilst being tolerated well by crop plants, such as, for example, maize.

Example B

Post-emergence test

Solvent: 5 parts by weight of acetone

5 Emulsifier: 1 part by weight of alkylaryl polyglycol ether

10 To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent, the stated amount of emulsifier is added and the concentrate is diluted with water to the desired concentration.

15 Test plants which have a height of 5 - 15 cm are sprayed with the preparation of active compound such that the particular amounts of active compound desired are applied per unit area. The concentration of the spray liquor is chosen so that the particular amounts of active compound desired are applied in 1000 l of water/ha.

After three weeks, the degree of damage to the plants is rated in % damage in comparison to the development of the untreated control.

20 The figures denote:

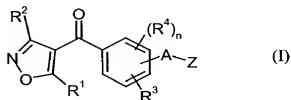
0% = no effect (like untreated control)

100% = total destruction

25 In this test, for example, the compounds of Preparation Examples 3 and 4 exhibit very strong activity against weeds, whilst being tolerated well by crop plants, such as, for example, wheat.

Patent Claims

1. Compounds of the general formula (I),



in which

n represents the number 0, 1, 2 or 3,

A represents a single bond or represents alkanediyl (alkylene),

R¹ represents hydrogen or represents in each case optionally substituted alkyl, alkenyl or cycloalkyl,

R² represents hydrogen, cyano, carbamoyl, halogen, or represents in each case optionally substituted alkyl, alkylcarbonyl, alkoxy, alkoxy-carbonyl, alkylthio, alkylsulphinyl or alkylsulphonyl,

R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thio-carbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or dialkylaminosulphonyl,

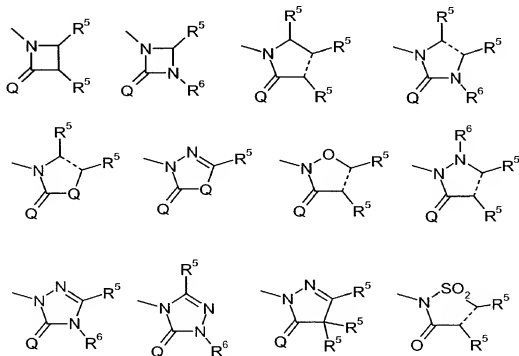
R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkyl-thio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or di-alkylaminosulphonyl, and

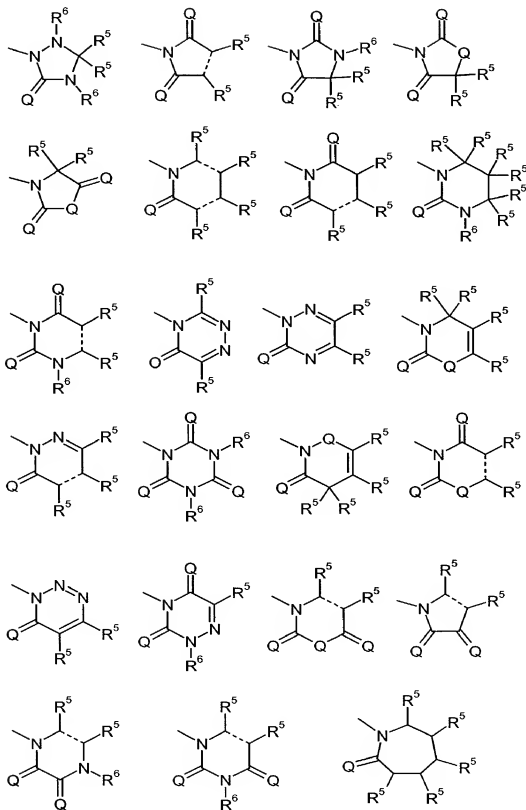
- 5 Z represents an optionally substituted 4- to 12-membered, saturated or unsaturated, monocyclic or bicyclic, heterocyclic grouping which contains 1 to 4 hetero atoms (up to 4 nitrogen atoms and optionally - alternatively or additionally - one oxygen atom or one sulphur atom, or one SO grouping or one SO₂ grouping) and which additionally contains one to three oxo groups (C=O) and/or thioxo groups (C=S) as components of the heterocycle.
- 10 2. Compounds according to Claim 1, characterized in that
- n represents the number 0, 1 or 2,
- A represents a single bond or represents alkanediyl (alkylene) having 1 to 4 carbon atoms,
- 15 R¹ represents hydrogen, represents optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl having 1 to 6 carbon atoms, represents optionally cyano- or halogen-substituted alkenyl having 2 to 6 carbon atoms, or represents optionally cyano-, halogen- or C₁-C₄-alkyl-substituted cycloalkyl having 3 to 6 carbon atoms,
- 20 R² represents hydrogen, cyano, carbamoyl, halogen, represents in each case optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkylcarbonyl, alkoxy or alkoxycarbonyl having in each case up to 6 carbon atoms, or represents optionally halogen-substituted alkylthio, alkylsulphinyl or alkylsulphonyl having 1 to 6 carbon atoms,
- 25 R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thio-carbamoyl, halogen, represents in each case optionally halogen-,
- 30

C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkoxy, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulphonyl having in each case up to 4 carbon atoms in the alkyl groups,

R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulphinyl- or C₁-C₄-alkylsulphonyl-substituted alkyl, alkoxy, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulphonyl having in each case up to 4 carbon atoms in the alkyl groups, and

Z represents one of the heterocyclic groupings below





in which the dotted bond is in each case a single bond or a double bond, and each heterocyclic grouping preferably only carries two substituents of the definition R^5 and/or R^6 ,

5 Q represents oxygen or sulphur,

10 R^5 represents hydrogen, hydroxyl, mercapto, cyano, halogen, represents in each case optionally cyano-, halogen-, C_1 - C_4 -alkoxy-, C_1 - C_4 -alkylthio-, C_1 - C_4 -alkylsulphinyl- or C_1 - C_4 -alkylsulphonyl-substituted alkyl, alkylcarbonyl, alkoxy, alkoxycarbonyl, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkylamino or dialkylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl, alkenyloxy, alkenylthio or alkenylamino having in each case up to 6 carbon atoms in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkyloxy, cycloalkylthio, cycloalkyl-amino, cycloalkylalkyl, cycloalkylalkoxy, cycloalkylalkylthio or cycloalkylalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 4 carbon atoms in the alkyl moiety, or represents in each case optionally halogen-, C_1 - C_4 -alkyl- or C_1 - C_4 -alkoxy-substituted phenyl, phenyloxy, phenylthio, phenyl-amino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or – if two adjacent radicals R^5 and R^5 are located at a double bond - also together with the adjacent radical R^5 represents a benzo grouping, and

30 R^6 represents hydrogen, hydroxyl, amino, alkylidenamino having up to 4 carbon atoms, represents in each case optionally halogen- or C_1 - C_4 -alkoxy-substituted alkyl, alkoxy, alkylamino, dialkylamino or

alkanoylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl or alkenyloxy having in each case up to 6 carbon atoms in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkylalkyl or cycloalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 3 carbon atoms in the alkyl moiety, or represents in each case optionally halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl or benzyl, or together with an adjacent radical R⁵ or R⁶ represents optionally halogen- or C₁-C₄-alkyl-substituted alkanediyl having 3 to 5 carbon atoms,

where the individual radicals R⁵ and R⁶ – if a plurality of them are attached to the same heterocyclic grouping - can have identical or different meanings within the scope of the above definition.

3. Compounds according to Claim 1 or 2, characterized in that

A represents a single bond, methylene, ethylidene (ethane-1,1-diyl) or dimethylene (ethane-1,2-diyl),

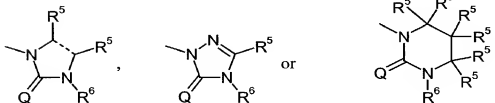
R¹ represents hydrogen, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl, n- or i-propylsulphinyl-, methylsulphonyl-, ethylsulphonyl-, n- or i-propylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine-, chlorine- or bromine-substituted propenyl, butenyl, propinyl or butinyl, or represents in each case optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl,

- 5 R² represents hydrogen, cyano, carbamoyl, fluorine, chlorine, bromine, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, acetyl, propionyl, n- or i-butyryl, methoxy, ethoxy, n- or i-propoxy, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, or represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio,
- 10 R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thio- carbamoyl, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methyl- sulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-sub-
15 stituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethyl-
20 sulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylamino-
 sulphonyl or diethylaminosulphonyl,
- 25 R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-,
30 n- or i-propylthio-, methylsulphinyl-, ethylsulphinyl-, methyl- sulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine-

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and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulphonyl or diethylaminosulphonyl,

Z represents one of the groupings



R^5 represents hydrogen, hydroxyl, mercapto, cyano, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, n-, i-, s- or t-butoxy-, methylthio-, ethylthio-, n- or i-propylthio-, n-, i-, s- or t-butylthio-, methylsulphinyl-, ethylsulphinyl-, n- or i-propylsulphinyl-, methylsulphonyl-, ethylsulphonyl-, n- or i-propylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, methylthio, ethylthio, n- or i-propylthio, n-, i-, s- or t-butylthio, methylsulphinyl, ethylsulphinyl, n- or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propylsulphonyl, represents methylamino, ethylamino, n- or i-propylamino, n-, i-, s- or t-butylamino, dimethylamino, diethylamino, di-n-propylamino or di-i-propylamino, represents in each case optionally fluorine- and/or chlorine-substituted ethenyl, propenyl, butenyl, ethinyl, propinyl, butinyl, propenyloxy, butenyloxy, propenylthio, butenylthio, propenylamino or butenylamino, represents in each case optionally fluorine- and/or chlorine-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropyloxy,

5 cyclobutyloxy, cyclopentyloxy, cyclohexyloxy, cyclopropylthio, cyclobutylthio, cyclopentylthio, cyclohexylthio, cyclopropylamino, cyclobutylamino, cyclopentylamino, cyclohexylamino, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, cyclopropylmethoxy, cyclobutylmethoxy, cyclopentylmethoxy, cyclohexylmethoxy, cyclopropylmethylthio, cyclobutylmethylthio, cyclopentylmethylthio, cyclohexylmethylthio, cyclopropylmethylamino, cyclobutylmethylamino, cyclopentylmethylamino or cyclohexylmethylamino, or represents in each case optionally fluorine-, chlorine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, methoxy-, ethoxy-, n- or i-propoxy-substituted phenyl, phenyloxy, phenylthio, phenylamino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or - if two adjacent radicals R^5 and R^5 are located at a double bond - together with the adjacent radical R^5 also represents a benzo grouping, and

10

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20 R^6 represents hydrogen, hydroxyl, amino, represents in each case optionally fluorine- and/or chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i- or s-butyl, methoxy, ethoxy, n- or i-propoxy, methylamino, ethylamino or dimethylamino, represents in each case optionally fluorine- and/or chlorine-substituted ethenyl, propenyl, ethinyl, propinyl or propenyloxy, represents in each case optionally fluorine- and/or chlorine-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, or represents in each case optionally fluorine-, chlorine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, methoxy-, ethoxy-, n- or i-propoxy-substituted phenyl or benzyl, or together with an adjacent radical R^5 or R^6 represents in each case optionally methyl- and/or ethyl-substituted propane-1,3-diyl (trimethylene) or butane-1,4-diyl (tetramethylene).

25

30

4. Compounds according to any of Claims 1 to 3, characterized in that

- 5 R¹ represents hydrogen, represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, methylthio-, ethylthio-, methylsulphinyl-, ethylsulphinyl-, methylsulphonyl- or ethylsulphonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, or represents optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl,
- 10 R² represents hydrogen, cyano, carbamoyl, fluorine, chlorine, bromine, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, or represents in each case optionally fluorine- and/or chlorine-
- 15 substituted methylthio, ethylthio, n- or i-propylthio,
- 20 R³ represents hydrogen, nitro, cyano, fluorine, chlorine, bromine, iodine, methyl, ethyl, trifluoromethyl, methoxymethyl, methylthiomethyl, methylsulphinylmethyl, methylsulphonylmethyl, methoxy, ethoxy, difluoromethoxy, trifluoromethoxy, methylthio, ethylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl or dimethylaminosulphonyl,
- 25 R⁴ represents nitro, cyano, fluorine, chlorine, bromine, methyl, ethyl, trifluoromethyl, methoxymethyl, methylthiomethyl, methylsulphinylmethyl, methylsulphonylmethyl, methoxy, ethoxy, difluoromethoxy, trifluoromethoxy, methylthio, ethylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl or dimethylaminosulphonyl,

5 R⁵ represents hydrogen, hydroxyl, chlorine, bromine, methyl, ethyl, n- or
 i-propyl, n-, i-, s- or t-butyl, difluoromethyl, dichloromethyl, trifluoro-
 methyl, trichloromethyl, chlorodifluoromethyl, fluorodichloromethyl,
 fluoroethyl, chloroethyl, difluoroethyl, dichloroethyl, fluoro-n-propyl,
 10 fluoro-i-propyl, chloro-n-propyl, chloro-i-propyl, methoxymethyl,
 ethoxymethyl, methoxyethyl, ethoxyethyl, methoxy, ethoxy, n- or
 i-propoxy, n-, i-, s- or t-butoxy, fluoroethoxy, chloroethoxy, difluoro-
 ethoxy, dichloroethoxy, trifluoroethoxy, trichloroethoxy, chlorofluoro-
 15 ethoxy, chlorodifluoroethoxy, fluorodichloroethoxy, methylthio,
 ethylthio, n- or i-propylthio, fluoroethylthio, chloroethylthio, difluoro-
 ethylthio, dichloroethylthio, chlorofluoroethylthio, chlorodifluoro-
 ethylthio, fluorodichloroethylthio, methylsulphinyl, ethylsulphinyl, n-
 or i-propylsulphinyl, methylsulphonyl, ethylsulphonyl, n- or i-propyl-
 20 sulphonyl, dimethylamino, propenylthio, butenylthio, propinylthio,
 butinylthio, cyclopropyl, cyclopropylmethyl, cyclopropylmethoxy,
 phenyl or phenoxy, and

20 R⁶ represents amino, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl,
 methoxy, ethoxy, methylamino, dimethylamino, cyclopropyl or cyclo-
 propylmethyl, or together with R⁵ represents propane-1,3-diyl
 (trimethylene), butane-1,4-diyl (tetramethylene) or pentane-1,5-diyl
 (pentamethylene).

25 5. Compounds according to any of Claims 1 to 4, characterized in that

A represents methylene.

6. Compounds according to any of Claims 1 to 5, characterized in that

30 Q represents oxygen (O).

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7. Compounds according to any of Claims 1 to 6, characterized in that

R^1 represents cyclopropyl.

5 8. Compounds according to any of Claims 1 to 7, characterized in that

R^2 represents hydrogen, methoxycarbonyl or ethoxycarbonyl.

9. Compounds according to any of Claims 1 to 8, characterized in that

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R^6 represents methyl, dimethylamino or cyclopropyl.

10. Compounds according to any of Claims 1 to 9, characterized in that

15

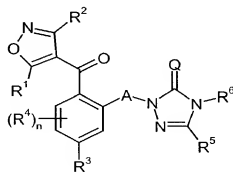
R^3 represents chlorine, bromine, cyano, trifluoromethyl or methylsulphonyl.

11. Compounds according to any of Claims 1 to 10, characterized in that

20

R^4 represents hydrogen, cyano, chlorine, nitro, methyl, trifluoromethyl, methoxy or methylsulphonyl.

12. Compounds according to any of Claims 1 to 11 of the general formula (IA)



(IA)

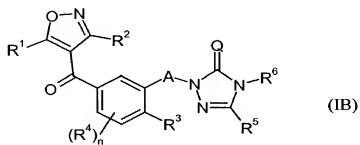
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in which

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n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined in any of Claims 1 to 11.

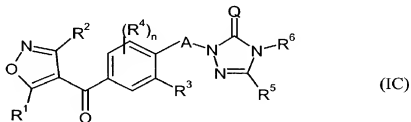
13. Compounds according to any of Claims 1 to 11 of the general formula (IB)



in which

14. n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined in any of Claims 1 to 11.

15. Compounds according to any of Claims 1 to 11 of the general formula (IC)

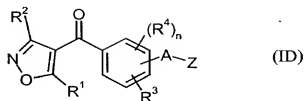


in which

16. n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined in any of Claims 1 to 11.

17. Compounds according to any of Claims 1 to 11 of the general formula (ID)

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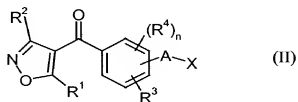


in which

n, A, Q, R¹, R², R³, R⁴, R⁵ and R⁶ are each as defined in any of Claims 1 to 11.

16. Process for preparing compounds according to any of Claims 1 to 15, characterized in that

(a) benzoylisoxazoles of the general formula (II)



in which

n, A, R¹, R², R³ and R⁴ are each as defined in any of Claims 1 to 5, 7, 8, 10 and 11 and

X represents halogen

are reacted with heterocycles of the general formula (III)



in which

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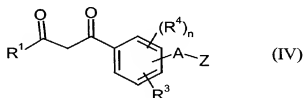
Z is as defined in Claims 1 or 2,

if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of one or more diluents,

or that

- if R² is hydrogen-

(b) benzoyl ketones of the general formula (IV)



in which

n, A, R¹, R³, R⁴ and Z are each as defined in any of Claims 1 to 5, 7, 10 and

are reacted with an orthoformic ester or an N,N-dimethylformamide acetal

and subsequently with hydroxylamine or an acid adduct thereof,

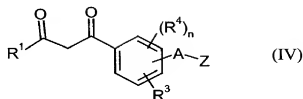
if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of one or more diluents,

or that

- if R² represents optionally substituted alkoxycarbonyl -

(c) benzoyl ketones of the general formula (IV)

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in which

5 n, A, R¹, R³, R⁴ and Z are each as defined in any of Claims 1 to 5, 7, 10 and
11

are reacted with a cyanoformic ester and then with hydroxylamine or an acid
adduct thereof, or with an alkyl chloro-hydroximino-acetate,

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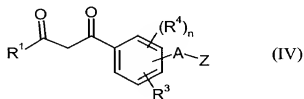
if appropriate in the presence of one or more reaction auxiliaries and if
appropriate in the presence of one or more diluents,

or that

15

- if R² represents alkylthio -

(d) benzoyl ketones of the general formula (IV)



20

in which

n, A, R¹, R³, R⁴ and Z are each as defined in any of Claims 1 to 5, 7, 10 and
25 11

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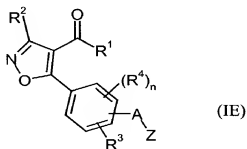
are reacted with carbon disulphide and with an alkylating agent

and then with hydroxylamine or an acid adduct thereof,

5 if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of one or more diluents,

and electrophilic or nucleophilic substitutions and/or oxidations or reductions within the scope of the definition of the substituents are, if appropriate, subsequently carried out in a customary manner on the compounds of the formula (I) obtained according to processes (a) to (d).

17. Compounds of the general formula (IE)



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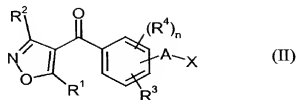
in which

n, A, R¹, R², R³, R⁴ and Z are each as defined in any of Claims 1 to 5, 7, 8, 10 and 11.

20

18. Compounds of the general formula (II), except for ethyl 4-(2-bromo-methyl-benzoyl)-5-cyclopropyl-isoxazole-3-carboxylate,

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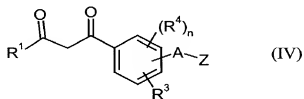


in which

n , A , R^1 , R^2 , R^3 and R^4 are each as defined in any of Claims 1 to 5, 7, 8, 10
and 11 and

X represents halogen.

19. Compounds of the general formula (IV)



in which

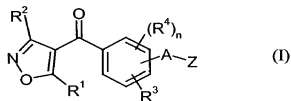
n , A , R^1 , R^3 , R^4 and Z are each as defined in any of Claims 1 to 5, 7, 10 and
11.

20. Herbicidal compositions, characterized in that they comprise at least one
compound according to any of Claims 1 to 14 and customary extenders.

21. Use of at least one compound according to any of Claims 1 to 14 for
controlling undesirable plants.

Substituted benzoylisoxazoles**A b s t r a c t**

The invention relates to novel substituted benzoylisoxazoles of the general formula (I),



in which

n represents the number 0, 1, 2 or 3,

A represents a single bond or represents alkanediyl (alkylene),

R¹ represents hydrogen or represents in each case optionally substituted alkyl, alkenyl or cycloalkyl,

R² represents hydrogen, cyano, carbamoyl, halogen, or represents in each case optionally substituted alkyl, alkylcarbonyl, alkoxy, alkoxycarbonyl or alkylthio, alkylsulphinyl or alkylsulphonyl,

R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or dialkylaminosulphonyl,

R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio,

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alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino or dialkylamino-sulphonyl, and

Z represents an optionally substituted 4- to 12-membered, saturated or unsaturated, monocyclic or bicyclic, heterocyclic grouping which contains 1 to 4 hetero atoms (up to 4 nitrogen atoms and optionally - alternatively or additionally - one oxygen atom or one sulphur atom, or one SO grouping or one SO₂ grouping) and which additionally contains one to three oxo groups (C=O) and/or thioxo groups (C=S) as components of the heterocycle,

and to processes for their preparation and to their use as herbicides.

COMBINED DECLARATION AND POWER OF ATTORNEY

ATTORNEY DOCKET NO

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

SUBSTITUTED BENZOYLISOXAZOLES AND THE USE THEREOF AS HERBICIDES

the specification of which is attached hereto,

or was filed on **April 20, 2000**

as a PCT Application Serial No. **PCT/EP00/03608**

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s), the priority(ies) of which is/are to be claimed:

199 20 791.7
(Number)

Germany
(Country)

May 6, 1999
(Month/Day/Year Filed)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose the material information as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Le A 33 672-US

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and this application and to transact all business in the Patent and Trademark Office conne

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5-00 FULL NAME OF FIFTH INVENTOR <u>Heinz-Jürgen Wroblowsky</u>	INVENTOR'S SIGNATURE <i>Heinz-Jürgen Wroblowsky</i>	DATE <i>2001-08-21</i>
RESIDENCE D 40764 <u>Langenfeld</u> , Germany <i>DE</i>	CITIZENSHIP German	
POST OFFICE ADDRESS c/o Bayer Aktiengesellschaft, D 51368 Leverkusen, Germany		
6-00 FULL NAME OF SIXTH INVENTOR <u>Mark Wilhelm Drewes</u>	INVENTOR'S SIGNATURE <i>Mark Wilhelm Drewes</i>	DATE <i>2001-08-16</i>
RESIDENCE D 40764 <u>Langenfeld</u> , Germany <i>DE</i>	CITIZENSHIP German	
POST OFFICE ADDRESS c/o Bayer Aktiengesellschaft, D 51368 Leverkusen, Germany		
7-00 FULL NAME OF SEVENTH INVENTOR <u>Dieter Feucht</u>	INVENTOR'S SIGNATURE <i>Dieter Feucht</i>	DATE <i>2001-08-17</i>
RESIDENCE D 40789 <u>Monheim</u> , Germany <i>DE</i>	CITIZENSHIP German	
POST OFFICE ADDRESS c/o Bayer Aktiengesellschaft, D 51368 Leverkusen, Germany		

8-00 FULL NAME OF EIGHTH INVENTOR <u>Rolf Pontzen</u>		INVENTOR'S SIGNATURE <u>Rolf Pontzen</u>		DATE 2001-08-16
RESIDENCE D 42799 <u>Leichlingen</u> , Germany <u>DE</u>		CITIZENSHIP German		
POST OFFICE ADDRESS c/o Bayer Aktiengesellschaft, D 51368 Leverkusen, Germany				
9-00 FULL NAME OF NINTH INVENTOR <u>Ingo Wetcholowsky</u>		INVENTOR'S SIGNATURE <u>Ingo Wetcholowsky</u> <u>BR</u>		DATE 2001-10-10
RESIDENCE <u>Vinhedo, S.P., CEP 13280000, Cond. Estancia Marambaia, Brazil</u>		CITIZENSHIP German		
POST OFFICE ADDRESS <u>Vinhedo, S.P., CEP 13280000, Cond. Estancia Marambaia, Rua Avare 500, Brazil</u>				
FULL NAME OF TENTH INVENTOR		INVENTOR'S SIGNATURE		DATE
RESIDENCE		CITIZENSHIP		
POST OFFICE ADDRESS				
FULL NAME OF ELEVENTH INVENTOR		INVENTOR'S SIGNATURE		DATE
RESIDENCE		CITIZENSHIP		
POST OFFICE ADDRESS				
FULL NAME OF TWELFTH INVENTOR		INVENTOR'S SIGNATURE		DATE
RESIDENCE		CITIZENSHIP		
POST OFFICE ADDRESS				
FULL NAME OF THIRTEENTH INVENTOR		INVENTOR'S SIGNATURE		DATE
RESIDENCE		CITIZENSHIP		
POST OFFICE ADDRESS				
FULL NAME OF FOURTEENTH INVENTOR		INVENTOR'S SIGNATURE		DATE
RESIDENCE		CITIZENSHIP		
POST OFFICE ADDRESS				
FULL NAME OF FIFTEENTH INVENTOR		INVENTOR'S SIGNATURE		DATE
RESIDENCE		CITIZENSHIP		
POST OFFICE ADDRESS				
FULL NAME OF SIXTEENTH INVENTOR		INVENTOR'S SIGNATURE		DATE
RESIDENCE		CITIZENSHIP		
POST OFFICE ADDRESS				
FULL NAME OF SEVENTEENTH INVENTOR		INVENTOR'S SIGNATURE		DATE
RESIDENCE		CITIZENSHIP		
POST OFFICE ADDRESS				